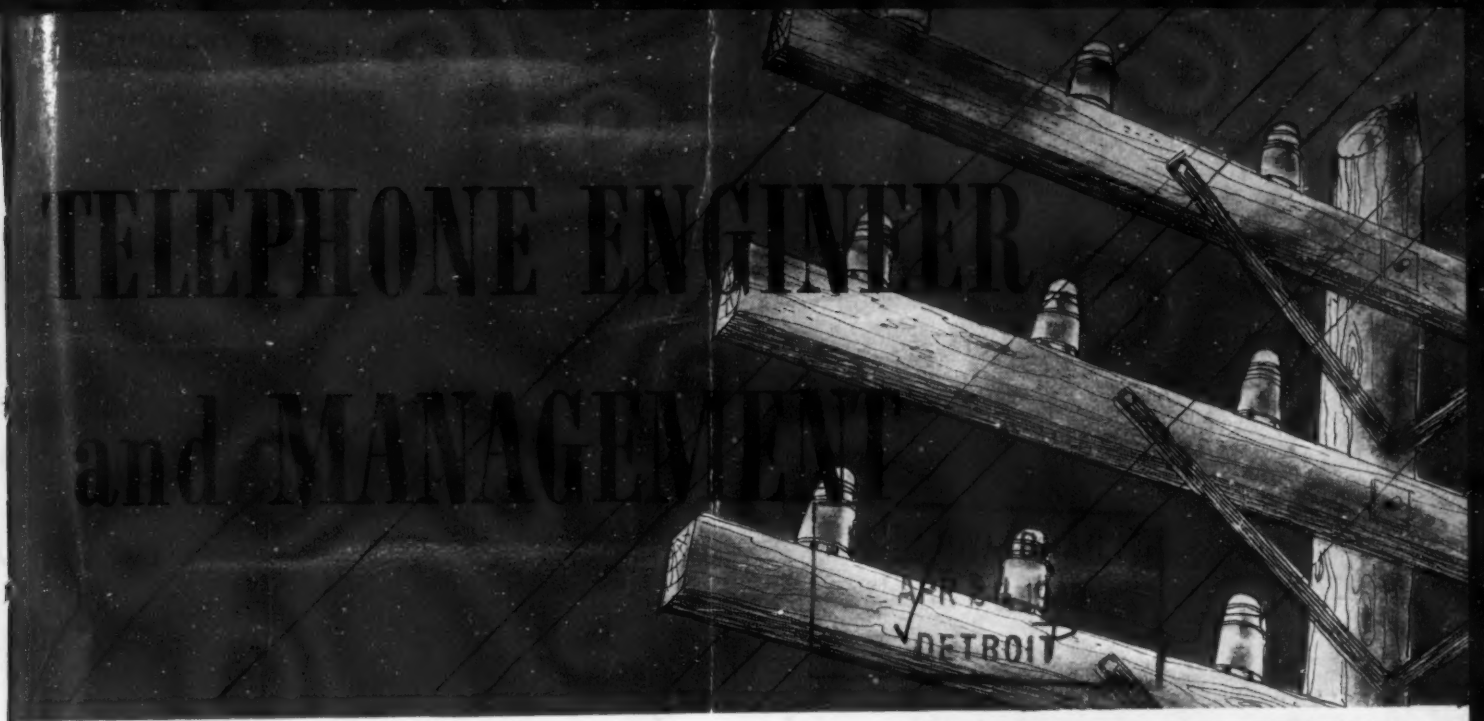
# TELEPHONE ENGINEER and MANAGEMENT



APRIL, 1949

# Alpine, Texas

**Alpine is a modern Texas City. It has lost the appearance of a "frontier" town, yet it still retains the Western tang . . . a quality stamped here by the high heeled cowboy boots which have trod the streets since 1882.**

Today, cattle barons of the fiction type actually reside here and operate huge ranches which raise the much sought after Highland Herefords. Although mining, dude ranches, and Sul Ross State Teachers College can all claim a rightful share in making Alpine what it is today — the region is still known as "Cow Heaven".

Alpine differs in many ways from other cities for which we publish Directories. Yet our Complete Directory Service Plan is flexible enough that we were able to put it to work successfully and profitably for the Alpine Telephone Company. Through our years of experience in publishing directories for more than 1200 cities and towns across the nation, we have developed this basic plan and assembled our units of specialized personnel which together make possible the publication of more accurate, more attractive, and more profitable telephone directories for the telephone companies we serve.

If for any reason your present directory publishing procedure is not entirely satisfactory, we would appreciate an opportunity to discuss your problems and our plan with you.

**GENERAL TELEPHONE DIRECTORY COMPANY**

EASTERN OFFICE: 185 NORTH WABASH AVENUE • CHICAGO 1, ILLINOIS • TELEPHONE: STATE 2-5478

WESTERN OFFICE: PRESS-TELEGRAM BUILDING • LONG BEACH 2, CALIFORNIA • TELEPHONE: 6-7221

# FLOTROL

## THE *All-New Battery Charger*

## AN UNSURPASSED INVESTMENT

A SINGLE MAGNETIC PART DOES EVERYTHING.....EXCEPT RECTIFY!

## IT REGULATES—IT COMPENSATES

and Holds The Battery Voltage Constant Within ± 1%
Without Moving A Single Part and Without Using Tubes, Motors, Relays, DC Stabilizers or DC Controlled Reactors.

FLOTROL WITH FEWER PARTS = { HIGHER EFFICIENCY / HIGHER POWER FACTOR } = DOLLARS SAVED

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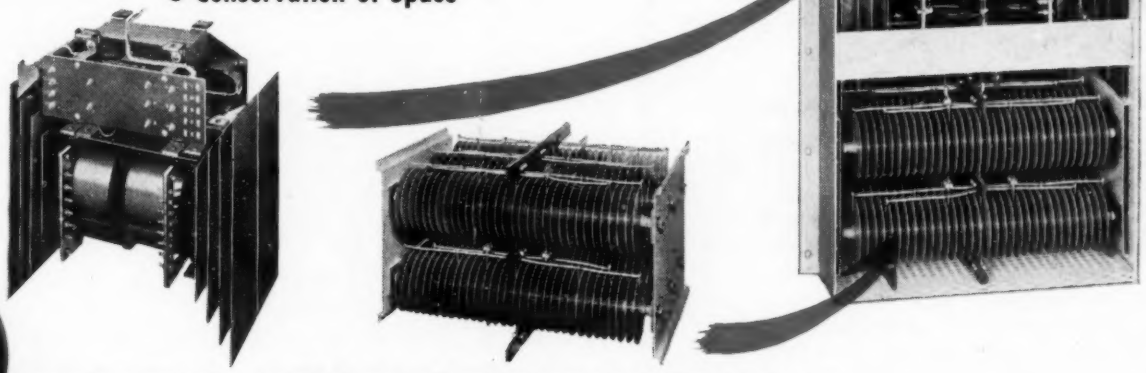
*Because of*

- Reduced Power Costs
- Longer Battery Life
- Reduced Possibility of Service Interruptions
- Reduced Maintenance On Plant Equipment
- Conservation of Space



ORDER BY MODEL NUMBER

MODELS FROM 1 AMPERE, 24 VOLTS TO 100 AMPERES, 50 VOLTS
ORDER FROM YOUR DISTRIBUTOR BY MODEL NUMBER

### FLOTROL CONSTANT VOLTAGE BATTERY CHARGERS

| MODEL | 60 C. INPUT | RATING | SIZE | MOUNTING |
|---|---|---|---|---|
| *24A | 1Ø, 105-125V. | 1.0 amp. 24V. | 19 x 5 x 7 | Relay Rack or Wall |
| *75A | 1Ø, 105-125V. | 3.0 amp. 24V. | 19 x 8 x 15¾ | Relay Rack or Wall |
| *150A | 1Ø, 105-125V. | 6.0 amp. 24V. | 19 x 8¼ x 24½ | Relay Rack or Wall |
| *300A | 1Ø, 105-125V. | 12.0 amp. 24V. | 19 x 13¼ x 31½ | Relay Rack or Wall |
| 600A | 1Ø, 210-250V. | 24.0 amp. 24V. | 23 x 15 x 45½ | Relay Rack |
| 1250A | 3Ø, 210-250V. | 50.0 amp. 24V. | 23 x 15 x 45½ | Relay Rack |
| 2500A | 3Ø, 210-250V. | 100.0 amp. 24V. | 32 x 22 x 60 | Floor |

### DUAL RANGE CHARGERS

| | | | | |
|---|---|---|---|---|
| 150D | 1Ø, 105-125V.<br>210-250V. | 6 amp. 24V.<br>3 amp. 50V. | 19 x 8¼ x 24½ | Relay Rack or Wall |
| 300D | 1Ø, 105-125V.<br>210-250V. | 12 amp. 24V.<br>6 amp. 50V. | 19 x 13¼ x 31½ | Relay Rack or Wall |
| 75B | 1Ø, 105-125V. | 1.5 amp. 50V. | 19 x 8 x 15¾ | Relay Rack or Wall |
| 150B | 1Ø, 105-125V. | 3 amp. 50V. | 19 x 8¼ x 24½ | Relay Rack or Wall |
| 300B | 1Ø, 105-125V. | 6 amp. 50 V. | 19 x 13¼ x 31½ | Relay Rack or Wall |
| 600B | 1Ø, 210-250V. | 12 amp. 50V. | 23 x 15 x 45½ | Relay Rack |
| 1200B | 1Ø, 210-250V. | 24 amp. 50 V. | 23 x 15 x 45½ | Relay Rack |
| 1250B | 3Ø, 210-250V. | 25 amp. 50V. | 23 x 15 x 45½ | Relay Rack |
| 2500B | 3Ø, 210-250V. | 50 amp. 50V. | 32 x 22 x 60 | Floor |
| 3750B | 3Ø, 210-250V. | 75 amp. 50V. | 32 x 22 x 60 | Floor |
| 5000B | 3Ø, 210-250V. | 100 amp. 50V. | 36 x 26 x 72 | Floor |

### LEGEND

52" rack available to floor mount models made only for 23" relay rack mounting.

* For 10, 11, or 12 cell manual P.B.X. or small central offices.

105–125 V. FLOTROLS tapped on input for operation on 95–115 V.

210–250 V. FLOTROLS tapped on input for operation on 190–230 V.

Output voltage regulation ± 1% from 10% to full load.

Single-phase FLOTROLS equipped with ammeter.

Three-phase FLOTROLS equipped with ammeter and voltmeter.

Three-phase FLOTROLS use electrolytic condensers in filter.

LORAIN PRODUCTS CORPORATION • DEPT. L • 1122 F ST. • LORAIN, OHIO

FLOTROL
PARTNERS IN DEPENDABILITY
SUB-CYCLE

## IT SEEMS TO US...

WM. C. (Cap) HENRY, president of the Northern Ohio Telephone Company, Bellevue, has few hours of spare time these days. His several appearances before legislative committees in Washington and Columbus, Ohio, at the state capital leaves him little time for his hobby of flying. Reports from both centers bring glowing comments on his work before these committees. There are now 3 bills affecting Independent telephone companies before the Ohio legislature.

• • •

It is now COLONEL FRANK DAVIES. Frank is president of the General Telephone Directory Company, Long Beach, Calif. His commission as a Kentucky Colonel was presented at Long Beach recently when the local Rotary Club there honored him. The commission, signed by the Governor of Kentucky, was the first and one of the few that have been bestowed by the present Governor.

• • •

Those of you using the Telephone Advertising Institute are dealing mostly with MRS. PHILLIP W. CONWAY. She has attended many of the telephone conventions during past years and has quite a wide acquaintance with telephone people all over the country. Do you recognize the name? It was MISS ELINOR BISHOP until her marriage March 26 to a Chicago electrical engineer. She is still executive secretary of the institute.

• • •

Another General Telephone Directory Company executive made the news the past fortnight. LELAND MAST, vice president, has been moved to Chicago in charge of their office in that area. Leland started his telephone career in his home state of Texas at Lubbock but left the telephone operating field to go into the telephone directory business. He replaces HARRY HEUTHER who left the directory field to join the Indiana Associated Telephone Co. as General Manager of the East Group of General Telephone System.

*The National Telephone Magazine*

# TELEPHONE ENGINEER and MANAGEMENT

**APRIL, 1949** **VOL. 53, NUMBER 4**

*Editor*, RAY W. SMITH • *Advertising Director*, ROY F. SMITH
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**FRONT COVER:** Pacific Bell crosses Willamette river in Eugene, Ore. Steel conduit is joined and bound together on pontoons, then floated down the river and lowered into a trench scooped out of the bottom.—Tyson Photo, Courtesy of Pacific Bell.

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# It cuts down your overhead when your "OVERHEAD" cuts up!

OVERHEAD MAINTENANCE headaches are headed off when you have the right trucks for the job. *You have,* when you have Internationals working for you.

Look at the 3 ways these hard-workers help you:

**1. They're right for the job!**

Sure, International gives you the right trucks for overhead maintenance. But more, it gives you the right trucks for every kind of utility job. International builds a complete line from the half-ton size up. There are 22 basic International models, 1,000 different truck combinations. Gross weight ratings range from 4,400 to 90,000 pounds.

**2. They're rugged!**

You may not appreciate an extra margin of stamina, dependability, and ruggedness on *every* job—but you will on some! For example: you'll be mighty thankful for International's extra heavy-duty design and construction. And you'll be mighty glad that the International engine has all that power.

**3. They have a service set-up to shorten "lay-up."**

When utility-owned trucks are laid up, that also ties up equipment mounted on 'em. That's a double headache. And it's a big reason why you'll want to have International's service organization backing you up. Its 4,700 Dealers and company-owned Branches have the parts, the tools, the mechanics to keep your trucks as hale and hearty as the day they rolled off the assembly line.

Whenever you need any kind of trucks for any kind of maintenance or construction work remember this: International offers you a complete truck line, completely dependable, backed by America's most complete, exclusive truck service organization. For complete truck satisfaction, get in touch with your nearest International Dealer or Branch.

Other International Harvester Products . . . Industrial Power
Farmall Tractors and Machines . . . Refrigeration

*Tune in James Melton and "Harvest of Stars"*
*NBC, Sunday afternoons*

# INTERNATIONAL TRUCKS

INTERNATIONAL HARVESTER COMPANY • CHICAGO

LIGHT

CAN'T HURT TELECORD

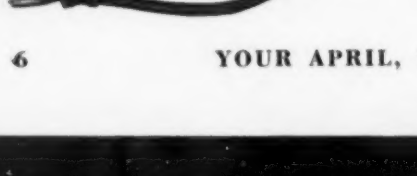
The tough tire-tread type neoprene jacket protects the sulphur-free rubber insulation from deterioration caused by light. This is one of many reasons why TELECORD has been adopted by so many Independent Telephone Companies as standard equipment.

Light causes insulation to crack and check, permitting moisture, tarnish and other influences to do their harmful work. TELECORD prevents all this by being impervious to and impenetrable by light.

TELECORDS last longer, cost no more than old fashioned troublesome cords—they look better, they are better.

Put these long-life tinsel-conductor TELECORDS on your telephones for service to your customers and economy for you. TELECORD for use as line or receiver cords is available from your Independent Telephone Manufacturer trimmed to fit all standard desk sets.

Koiled Kords
INCORPORATED
NEW HAVEN 14,
CONNECTICUT



**PHONE RATE STRANGULATION**:—"The Department of Public Utilities has read the state election returns. It has saved individual home telephone users maybe two bits or a half a dollar a month by rejecting the rate petition of the New England Telephone & Telegraph Company. In doing so it has strangled the company's financing, has jeopardized its ability to serve its subscribers well, has prevented the growth of one of the state's largest industries, has made probable the layoff of a large number of construction workers and has dealt in bad faith with 17,000 investors.

"The four bits looks large in a political campaign. The rest can be forgotten.

"But can it?

"In the last three years the company spent $152,298,814 in new construction in this state alone. It has responded to the post-war demand for phones by a 60 per cent increase. Probably the largest private employer, its payroll in Massachusetts is $70,000,000. It pays $9,000,000 in taxes here. It buys $16,000,000 worth of goods from our businesses. If cheap telephone rates strangle the telephone company's operations, then they are cheap only as political campaign material—and it's pretty cheap material even there.

"The DPU can't or won't see that. The order it issued recently totally ignores the realities of the situation. . . .

"There is something fundamentally dangerous in the political philosophy that inspires regulatory bodies to deny a healthy return on invested capital. It is the kind of philosophy that can lead to the gradual depletion of our capital and its replacement by government ownership and operation."—**The Boston Herald.**

• • •

**IS THERE ANYTHING LEFT?**:—"Under the heading 'profits' in the Annual Reports which are appearing about now, are the most misunderstood figures in business.

"Profits are not fixed and inevitable as some people believe. Proof of this fact is that half of America's 450,000 corporations fail to make a profit in any one year.

"Profits are a residue. They are what is left—if anything—after every one else has been paid.

"The supplier must get his money promptly. Bank loans must be paid on the due date. Wages and salaries do not wait. The government demands taxes on time.

"Management that can pay out all this, and still show a profit, is doing quite a job. And unless it **can** show a profit, the business is on the way out. 'Something left over' is the major difference between sickness and business good health.

"Neither the men and women in industry nor the money in indutry can be effective without good management. Nothing else is so important to the welfare of workers, investors and public."—**One of a series of advertisements by N. W. Ayer & Son, Inc.**

• • •

**SMALLEST EXCHANGE . . .** The Associated Press reports the smallest telephone exchange in Texas—and there's no argument about it—is the Maysfield (Texas) Exchange. Maysfield is near Cameron in Milam County, Texas.

Southwestern Bell Telephone Co. records indicate the exchange couldn't be any smaller—because it has just one telephone.

But the switchboard has 150 lines, 12 of them ready for service and is one telephone company in the country that has no "Held Order" file.

# POWERS GENERAL SERVICE BODIES

## *for versatile utility work*

Twenty-four hours a day these POWERS Bodies act as mobile shops, ready to do the job anywhere. Ideal for meter and telephone installation, maintenance, emergency calls and other utility services. All-steel construction provides a dependable body that takes rough jobs in stride . . . lasts longer for greater economy. Built to flexible standards that can be arranged to suit your individual requirements. Models for ½, ¾ and 1-ton chassis. Write for complete information.

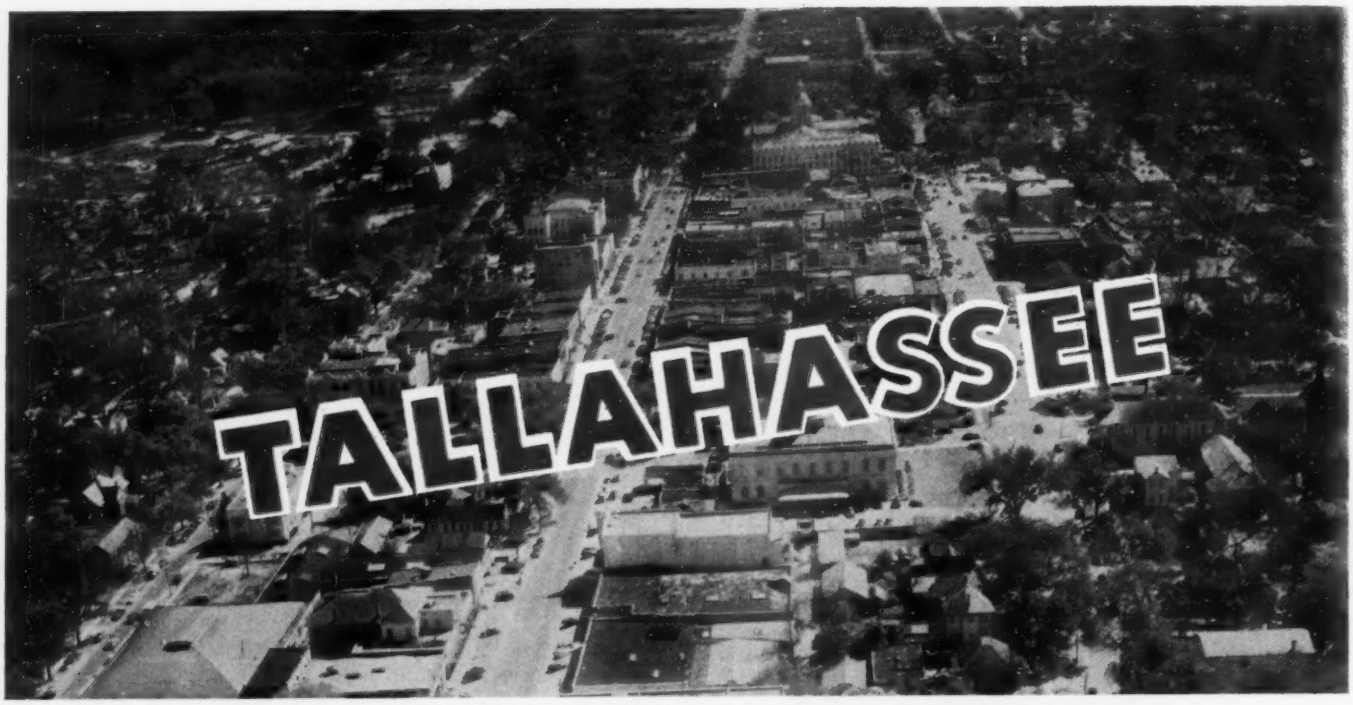
ALL-STEEL POWERS PUBLIC UTILITY BODIES

**McCABE POWERS AUTO BODY CO.**

5900 N. BROADWAY • ST. LOUIS 15, MO.

OVER 75 YEARS EXPERIENCE

# TWO MORE CITIES Join The Trend To

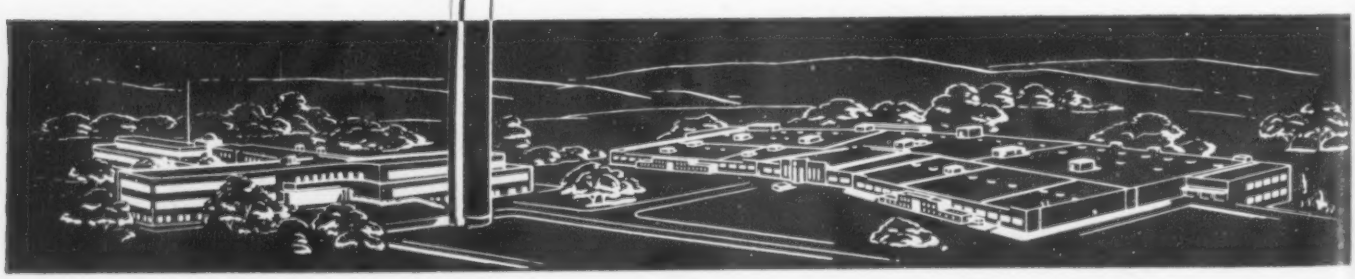



**Florida State Capital and college center (19,000 population) will convert to dial operation with Federal's 7A-2 Rotary switching system, installing 6,000 lines and 9,000 terminals.**

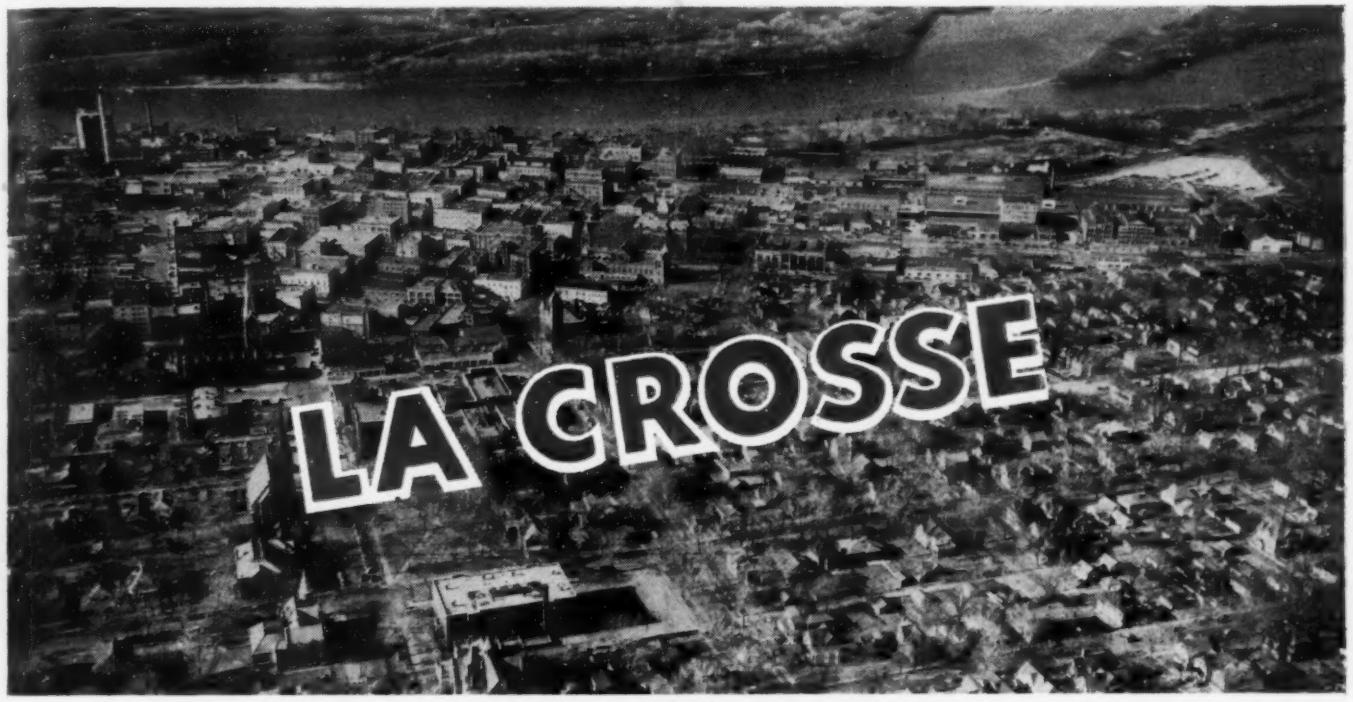
The La Crosse Telephone Corporation of La Crosse, Wis., and the Southeastern Telephone Company of Tallahassee, Fla.—both affiliates of the Central Telephone Company—will install a total of 13,800 lines and 24,000 terminals of Federal's 7A-2 Rotary switching equipment. Having seen the system in operation at Rochester, N. Y., company officials were impressed with the performance of the Rotary equipment, and with the advantages of register operation, failure-proof double test circuits, flexible line groups, universal party-line operation, direct reading traffic recording, automatic routine testing, false call and automatic permanent signal indication. Terminal-per-station operation will provide complete party-line flexibility.

**At Tallahassee** – Federal 7A-2 Rotary equipment will supplant a common battery switchboard in this single office area with 5,700 individual, PBX and party, 100 rural and 200 paystation lines; and 8,600 individual, PBX and party, 200 rural and 200 paystation terminals. There will be a 24-position toll board, consisting of 4 positions for in-

**ONE OF AMERICA'S GREAT FACTORIES SERVING THE TELEPHONE INDUSTRY**



# FEDERAL ROTARY




**Important Wisconsin industrial city (48,000 population) will have the advantages of modern dial telephone service provided by Federal Rotary. To install 7,500 lines and 14,600 terminals.**

ward and through toll and 20 positions of CLR. Also included are a 1-position repair clerk desk, a 3-position local and toll test board, and a 3-position information and intercept board. All manual boards will be supplied with Federal's key pulsing sets, which permit faster operation than the ordinary dialing method. The power plant will provide full float operation, power being supplied by diverter pole motor generator sets.

**At La Crosse**—the new Federal Rotary installation will replace the existing manual central office with 7,400 individual, PBX and party, and 100 paystation lines; and 14,500 individual, PBX and party, and 100 paystation terminals. A 2-position repair clerk desk and a 3-position local test board are provided. The installation is arranged for operator dialing with Chicago and other points. The satellite office of Onalaska, Wisconsin will be equipped with 300 lines and 400 terminals of 5-frequency terminal-per-line equipment. Service between Onalaska and La Crosse will be free, with all toll dial service assistance, information, complaints and manual services handled through La Crosse.

***For information on Federal Rotary and Step-by-Step systems—for any size of exchange—write to the Telephone Sales Department.***

FEDERAL TELEPHONE & RADIO

FTR

AN IT&T ASSOCIATE

*Federal Telephone and Radio Corporation*

100 KINGSLAND ROAD, CLIFTON, NEW JERSEY

In Canada: Federal Electric Manufacturing Company, Ltd., Montreal, P. Q.

# Lake City

Top Left: Dwelle Telephone Company's main exchange building at Lake City, Minn.

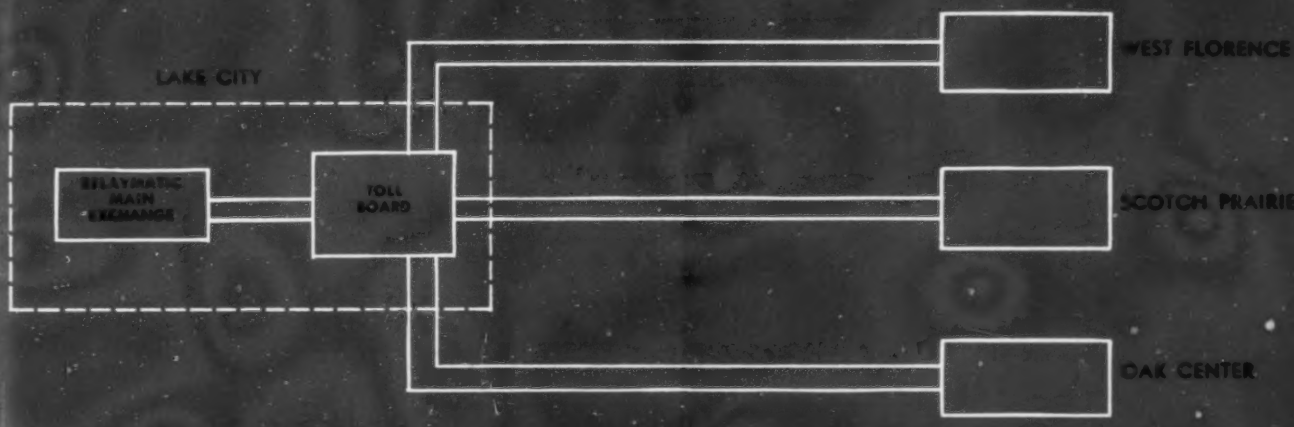
Top Right: Mr. G. M. Dwelle, Manager of the Dwelle Telephone Co.

Center: Partial view of new 600-line Relaymatic installation in the main exchange building at Lake City.

Lower Left: Operators on duty at the toll-board in the Lake City exchange.

# Modernizes!

## Dwelle Telephone Company Selects Relaymatic Because of its Flexibility and Economy of Operation




The Dwelle Telephone Company of Lake City, Minnesota, rates as the most modern Independent operating company in its area. It is managed by progressive-minded Mr. Glenn M. Dwelle who has been active in the Independent field for 50 years. He has always been the leader in providing the newest telephone equipment and now he is again first in his territory to convert to dial.

As shown in the above diagram, the Dwelle Telephone Company's system includes a main exchange with toll center at Lake City and satellite offices at West Florence, Scotch Prairie and Oak Center. Relaymatic's complete flexibility proved its value here. It made possible the planning of the most efficient and economical switching facilities for each of these locations at a moderate cost. Today, the Lake City exchange consists of a 300-line Selector Relaymatic operating in conjunction with two toll positions having full multiple of all local lines. A 30-line Relaymatic is operating in each of the three satellite offices.

### You Too, Can Gain These Advantages with RELAYMATIC!

***Dependable Operation Assures Economical Service*** with no need for costly maintenance. Relaymatic does all switching with relays only. Precious metal contacts insure positive contact, and there are no mechanical moving parts to wear out or need adjustment. Relaymatic is reliable in tropical humidity or sub-zero temperatures.

***Flexibility Allows Quick, Easy Expansion.*** "Unit" construction permits increasing facilities by merely adding extra bays.

***Adapts to Any Switching Operations*** no matter how complicated. May be had in 10 to 10,000-line capacities.

***Takes Less Time to Install and Maintain.*** Equipment bays are fully-wired, tested and connected. All lines are wired to terminal strips to facilitate cabling. And inspection is very easy! Just swing the doors open and all wiring and components are instantly accessible.

***Compact Construction Saves Space,*** cuts building and remodeling costs.

**WRITE KELLOGG FOR COMPLETE INFORMATION TODAY!**

**KELLOGG** SWITCHBOARD AND SUPPLY COMPANY

*Established 1897*

**RELAYMATIC SWITCHBOARD**

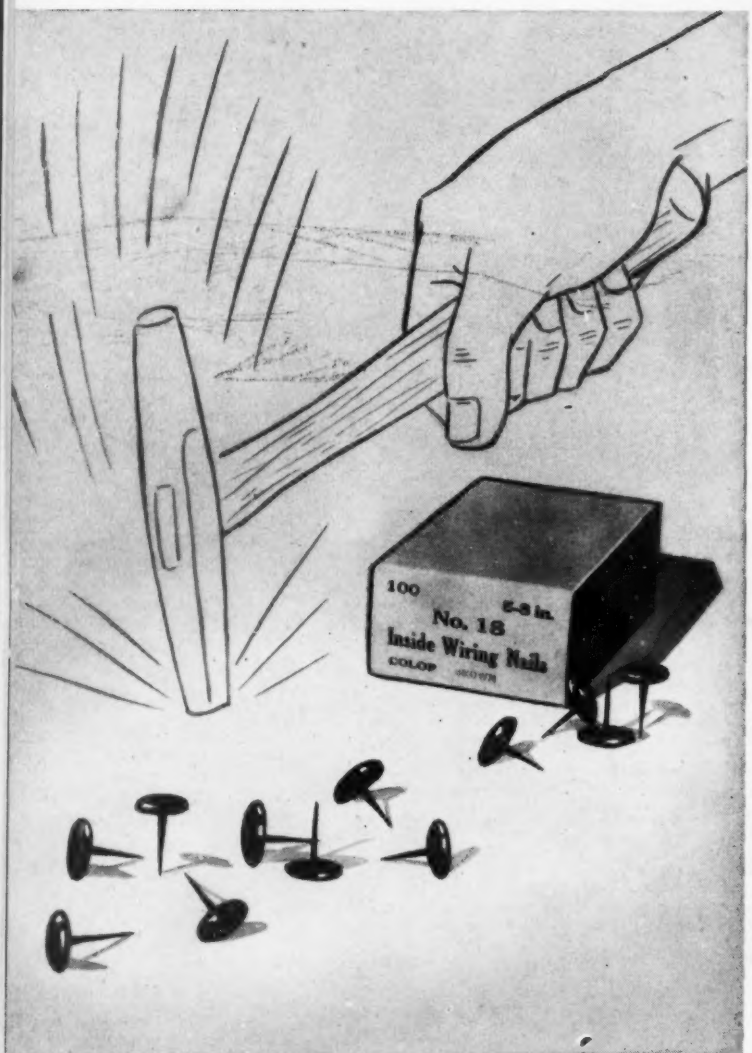
6650 SOUTH CICERO AVENUE • CHICAGO

# Successful INDEPENDENT TELEPHONE MAN Says:

**C. H. DAUBENDIEK,**
**Jefferson Telephone Co.,**
**Jefferson, Iowa**

"We believe it would have been impossible to attain the enviable position we now enjoy in Independent telephony without the 'all-out' cooperation of the Kellogg Switchboard and Supply Company".

**Sealed Against Trouble!** Manufacturers of communication equipment insist on Kester Plastic Rosin-core Solder, because it makes a perfect seal. Eliminates high-resistance joints and intermittent open-and-closed circuits. Protect against trouble by using KESTER SOLDER COMPANY'S Plastic Rosin-core Solder throughout your system!




**Why Do It the Hard Way?** Making neat installations is *easy*—when you use Rhodes Telephone Wiring Nails! That's because they're especially designed for telephone work, and their quality is insured by rigorous driving, bending, withdrawing and immersion tests. Made by M. M. RHODES & SONS CO., in several colors and pin-lengths.

## for EASIER ORDERING PROMPT HANDLING QUICK SHIPMENTS

**...send your next order to KELLOGG**

When you order from Kellogg, you fill out just ONE order form for *all* your line supplies. Saves you time and work! Then your order gets prompt attention by experienced telephone men. No chance for slip-ups here! Finally, we ship quickly, from the distribution point nearest you. It's fast, sure service, and every item is *guaranteed!*

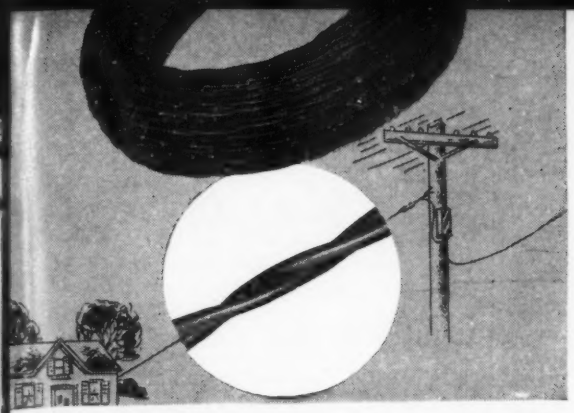
*For Service from a Nearby Distribution Point, Order Your Line Supplies from:*

**KELLOGG SWITCHBOARD AND SUPPLY COMPANY**

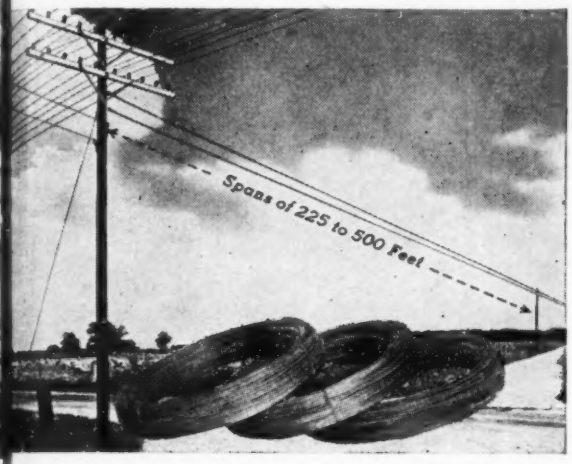
**SUPPLIES**

*Factory and General Offices:* 6650 SOUTH CICERO AVENUE, CHICAGO 38, ILL.
*Branch Offices:* KANSAS CITY • SAN FRANCISCO • ST. PAUL • LOS ANGELES

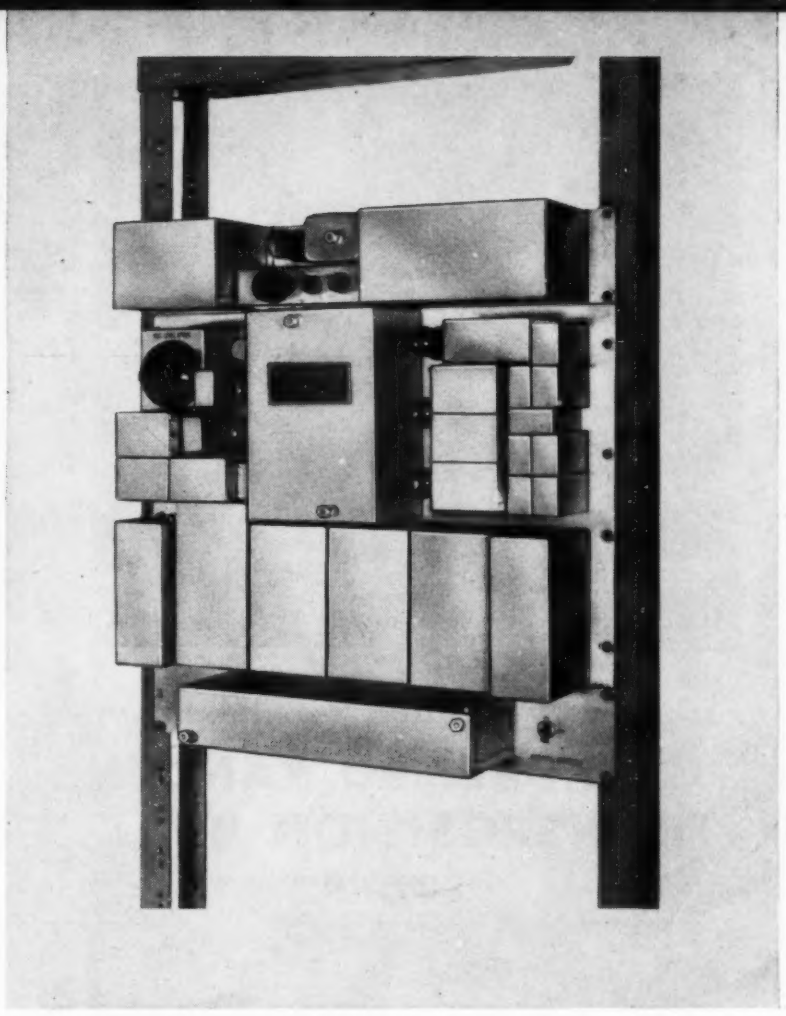
ALL OF THE ABOVE ITEMS MAY BE QUICKLY AND CONVENIENTLY ORDERED FR



**Drop Wire Lasts 30% Longer!** GENERAL INSULATED WIRE WORKS Bronze Drop Wire lasts longer because it's drawn of solid, non-corrosive, high-conductivity bronze and covered with hard-wearing Neoprene insulation. You'll find this strong drop wire is flexible and easy to handle.

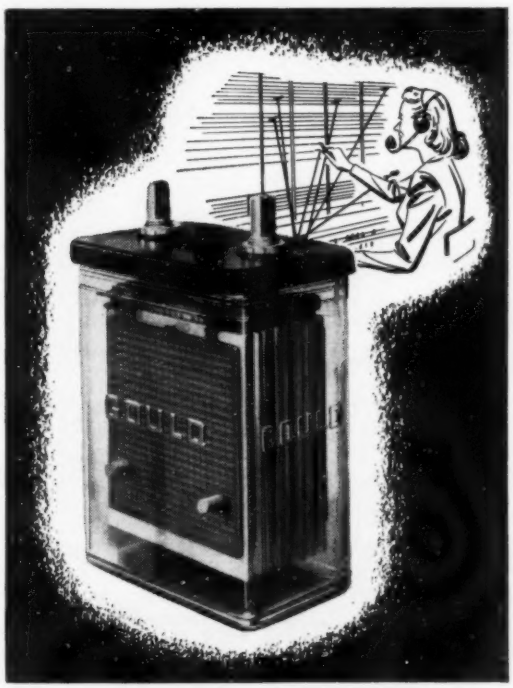



**The Time-Tested Steel Strand!** A heavy, ductile, tightly adherent zinc coating, applied by the famous Crapo Galvanizing Process, provides lasting protection from corrosion in Indiana Crapo Steel Strand. Made by the INDIANA STEEL & WIRE CO., its rugged strength minimizes maintenance.

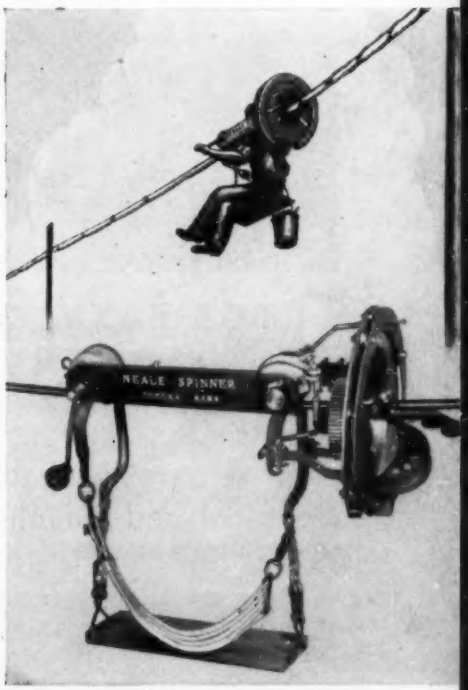


**Saves Construction Costs!** Dependable Kellogg Carrier transmits two conversations over a two-wire metallic circuit simultaneously; needs no extra poles or lines. Practically eliminates powerline induction interference. Simple to install and maintain in any toll, rural manual or automatic exchange. Made by KELLOGG SWITCHBOARD & SUPPLY CO.

**...g Life Expectancy** is built into pressure-...ated Southern Pine Poles and Crossarms. ...efully and thoroughly treated by AMERI-...N CREOSOTE WORKS, INC., these poles ...e the extra durability required for service ...der toughest climatic conditions.



**Cut Battery Power Costs!** Gould Planté stationary batteries cut maintenance and replacement costs for the telephone man. Thick, grooved, pure lead positive plates make possible an amazing number of years of trouble-free service. Made by GOULD STORAGE BATTERY CORP.

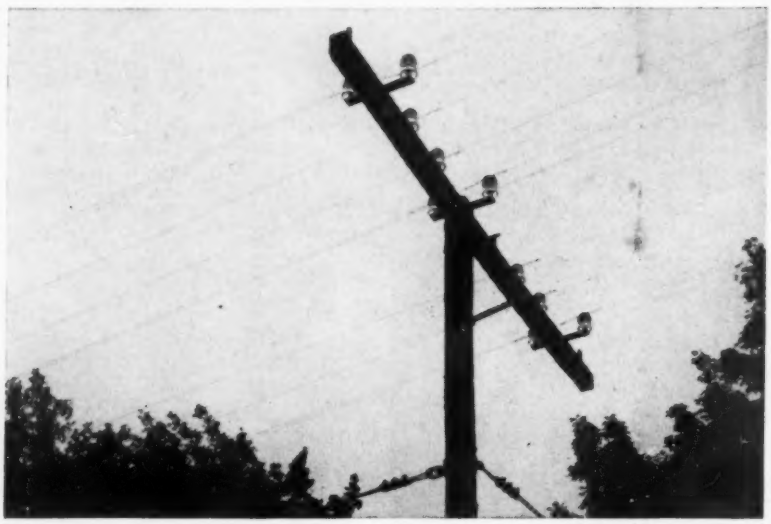



**Longer Cable Life and Less Maintenance** result from spinning with the Neale Model "B" Cable Spinner. Designed for one-man use, may be operated from aloft or on ground. Made by CABLE SPINNING EQUIPMENT CO., its accessories include handy storage chest, seat and safety belt.

*For Your Consideration*

**HUBBARD TANDEM TRANSPOSITION BRACKETS**

HOT GALVANIZED



**FOR EASY, QUICK, EFFICIENT TRANSPOSITIONS**

For complete details, write to Hubbard & Company • Pittsburgh 1, Pa.

Also a complete line of
Electrical and Telephone Construction Specialties

"HANG THE LOAD ON HUBBARD HARDWARE"

**HUBBARD AND COMPANY**

ESTABLISHED 1843

PITTSBURGH CHICAGO

OAKLAND, CALIFORNIA

# ON OUR *Party Line*

## Let There Be Light

EVER GET up in the middle of the night to answer the telephone and stumble over the furniture before you reached the switch? Donald P. Crookshank of Cleveland, O., has invented a gadget so you won't have to go through that any more. His device consists of an automatic switch which you put under the telephone and connect to any convenient lamp. When the telephone rings, the vibration throws the switch and the light is turned on even before you've one eye open.

## The Whistler and the Dog

ONE HOLLYWOOD writer recently went through quite a bit to put through a single telephone call. It seems when he went to make this call he discovered that one of the other parties on his line had left the receiver off the hook. In the distance he could hear people talking and occasionally a dog barking but no one was apparently using the telephone or knew that the receiver was off. Shouting into the telephone got the writer nowhere, till suddenly he remembered that dogs have what is known as high-frequency pitch. He whistled into the telephone and listened. The dog had heard him and had begun to bark. Whistling again and again, he noticed the dog's barking coming closer and closer. Soon the dog was barking into the receiver off the hook. "What's that dog barking for?" he heard a woman say and then she picked up the telephone. "Madame," the writer pleaded, "will you please get that dog of yours off the telephone? I have an important call to make."

## It's a Fact That

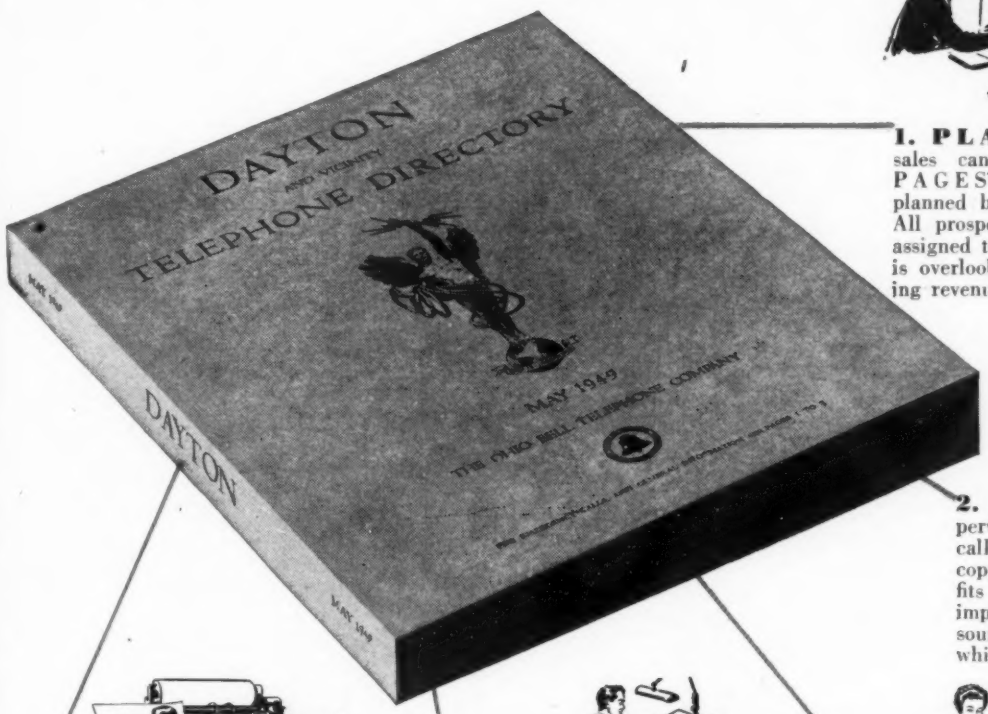
A 25 WATT light bulb uses two and one half million times as much power as the average human voice. Many of us no doubt never gave any thought to the fact that a voice generates power, but the Bell Laboratories came up with this interesting fact recently: The average voice in conversation gives out 1/100,000 of a single watt. In another interesting comparison the Laboratories state it would take 500 people speaking continuously for a year to produce enough energy to heat a cup of tea.

# Do you know "ALL THE WAYS"

# L. M. BERRY & CO. can help you produce a

# Good Telephone Directory?

## Here they are:



**1. PLANNING**—Each BERRY sales canvass to sell "YELLOW PAGES" advertising is carefully planned before a single call is made. All prospects are listed on cards and assigned to salesmen by areas. No sale is overlooked—highly desirable operating revenue is assured.

**2. SELLING**—Well-trained and supervised BERRY salesmen plan each call in advance . . . present layouts and copy . . . show all prospects the benefits of directory advertising. And most important, BERRY salesmen maintain sound and friendly public relations while making maximum sales.

**3. COMPILING**—BERRY compilation units are the last word in accuracy as they draw up ad schedules, check alphabetical and classified manuscripts, etc.

**4. PRODUCING**—After ads are sold, skilled BERRY production personnel follow through on art-work, cuts and type . . . and proofread ads.

**5. PUBLISHING**—BERRY representatives can arrange for the complete printing and binding of telephone directories.

FOUNDED IN 1910,
L. M. BERRY & COMPANY
TODAY SERVES OVER 180
INDEPENDENT AND BELL
TELEPHONE COMPANIES
IN MORE THAN 4000 CITIES
AND TOWNS IN 24 STATES.

# L.M. BERRY & CO.

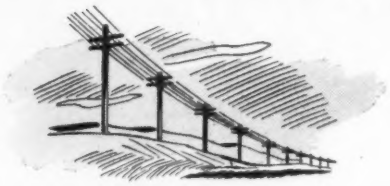
14 BRANCH OFFICES
Birmingham, Ala.
Bristol, Chattanooga, Knoxville,
Memphis and Nashville, Tenn.
Harrisburg, Penna. • Jackson, Miss.
Louisville, Ky. • Milwaukee, Wis.
New Orleans, La. • Rochester, N. Y.
Tampa, Fla. • Warsaw, Ind.

*Directory Advertising Exclusively*

**HULMAN BUILDING • DAYTON 2, OHIO • MIchigan 7421 • L. D. LOOP 16**

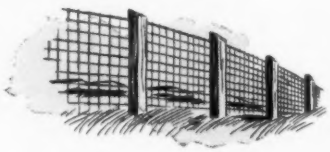
**BERRY REPRESENTATIVES SELL ADVERTISING FOR MORE TELEPHONE DIRECTORIES THAN ANY OTHER COMPANY**

# Some things to consider about Wood Preservation



Every year American railroads put in service some 45 million cross ties.

Every year American telephone and telegraph companies set out some 8 million poles.



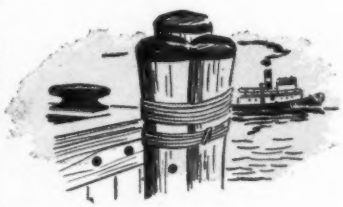
The choice of a wood preservative to protect these multi-million dollar investments is a serious matter—especially in these days of exceedingly high costs for lumber and labor.

That's why the following facts about Creosote Oil deserve your careful consideration:

**1. Creosote Oil, properly applied, protects wood against dry rot, termites, fungi and all wood-destroying organisms—extends the life of wood three to five times, or longer.**

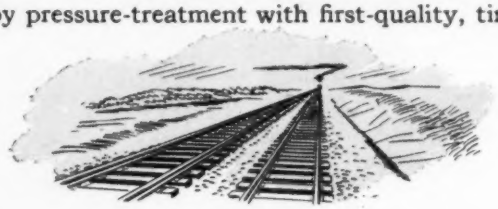
**2. It is the most widely used, most universally preferred, wood preservative in the world.**

**3. Creosote Oil for the pressure-treatment of wood has been in use long enough to *prove* its effectiveness beyond all shadow of doubt.**

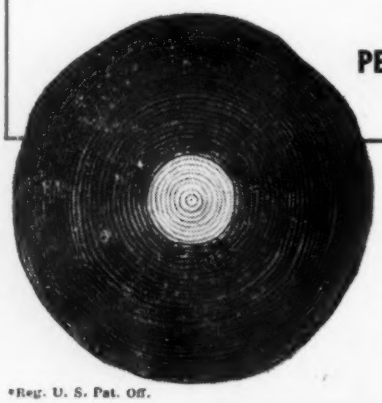


When—and if—a truly better method of preserving wood is found, you may be sure that Barrett, with more than a half-century of wood-preserving experience, will be among the first to sponsor it.

Until then, the sound way to protect your lumber investment is the way that has worked for the last hundred years—by pressure-treatment with first-quality, time-tested Creosote Oil.



**PENETRATES . . . PRESERVES . . . PROTECTS**



**THE BARRETT DIVISION**

ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street, New York 6, N. Y.

Barrett*

*Reg. U. S. Pat. Off.

# NEWSLETTER
TELEPHONE ENGINEER

*Fortnightly* TELEPHONE ENGINEER ★ TELEPHONE ENGINEER AND *Management*
ON THE 1st OF EACH MONTH ON THE 15th OF EACH MONTH

**NEWSLETTERS** *on Alternate Weeks*


Dear Sir:

April 15, 1949

Public utility companies in Massachusetts must be allowed rates sufficient to yield fair return on value of property, says recent decision handed down by Massachusetts Supreme Court. Court acted on appeal by Lowell Gas Light Co. from order of State Department of Public Utilities. Although court held that rates must yield fair return, it did not specify what it considered to be fair return, nor basis on which fair return was to be determined.

On heels of Lowell Gas Light decision, state Supreme Court reversed position taken previously and allowed Boston Consolidated Gas Co. to put into effect full $2,100,000 rate boost it sought last year. Massachusetts commission had allowed increase of $1,600,000. Rate cases in Massachusetts traditionally have been decided on basis of original cost of plant, prudently invested, less depreciation and less plant not used and useful. In Lowell Gas Light case court eliminated from consideration for rate increases profit or loss incurred by utility in merchandising and jobbing. The Massachusetts commission won't permit such losses to be charged to expenses but did take into account any profits in estimating reasonable return from all sources.

* * *

State-by-state study of limited common carrier radio telephone systems now authorized by FCC shows heaviest concentration of such facilities is—and will be, under present indications—in California, closely followed by New York, then Texas, Massachussets, Connecticut, Indiana, Ohio, Illinois, New Jersey and Oklahoma.

Interesting feature of study is indication that in large southwestern states, with larger towns widely spaced, greater number of such systems may be set up but that total number of mobile units utilized will probably be much less than numbers in California in states along eastern seaboard. Outstanding example of this possibility is Texas which has more than twice FCC authorizations of Illinois yet is topped in number of mobile units covered by grants by nearly one-third.

* * *

Wisconsin Public Service Commission authorized Wisconsin Tel. Co. to make changes throughout Wisconsin in its intrastate toll message rate schedule, effective after midnight Apr. 9. Newly authorized rates automatically become effective for all Independent companies in Wisconsin whose rate schedules filed with Wisconsin commission contain clause indicating their concurrence in use of Wisconsin Tel. Co.'s 'standard' intrastate toll rates. Independent companies covered by "concurrence clause" shall, after midnight Apr. 9, use new rates in charging for all interexchange toll messages where free interexchange service does not presently exist.

Because of community of interest between many communities within 10 mile radius of each other, commission retained initial mileage block

of 0-10 miles, unchanged; all other mileage blocks have been changed. Changes also made in length of talking periods, both initial & overtime & in person-to-person calls. It is estimated that new rates will increase total annual toll compensation from Wisconsin Tel. Co. to Wisconsin Independent telephone companies, approximately $102,100.

* * *

New England T. & T. after considering full effect of Mar. 18 order of Massachusetts Dept. of Public Utilities denying company's rate increase application announced reduction in large construction program in Massachusetts currently going ahead at rate of about $43 million per year. J. E. Harrell, president of New England T. & T. said company will postpone about $7 million of new construction planned for this year.

* * *

Washington, D. C. slashed at "Pyramid Club" craze when vice squad chief warned that members who use their telephones to obtain new members & relay information about progress of clubs are violating telephone company tariffs relating to use of facilities for gambling purposes, & could have their service discontinued. Press reports indicated that in some cities where pyramid craze was at its height, telephone systems were reported loaded as clubbers, scraping bottom of barrel for new members to continue clubs, made calls by thousands to obtain new recruits.

* * *

Highlights: Lester Askelson purchased Gilbert Tel. Co., Askelson, Ia....United Tel. Co. started extensive building remodeling program at Franklin, Ind....Edwin F. Gahan appointed supervisor of information, General Tel. Corp., New York....L. & A. Tel. Co., Lebanon, S. D., organized; Olin Comean is chairman of board....A .E. Filion, Hill City, S. D., purchased Home Tel. Co., Pukwana, S. D....Geo. Turnbull appointed mgr. of Wakefield (Ks.) Tel. Co....Columbia (Pa.) Tel. Co. completed cutover to automatic operation.

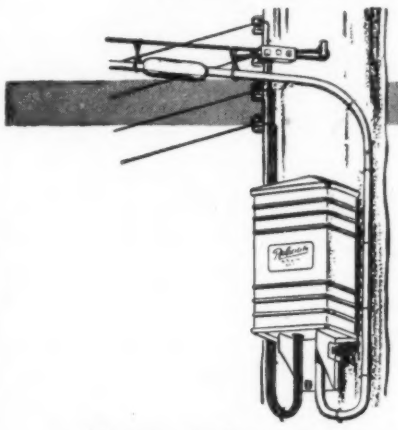
August Janke purchased McFarland (Wis.) Tel. Exchange from Mr. & Mrs. Otto Topper....Hazle Kennedy appointed traveling chief operator of Western Light & Tel. Co. with responsibility over company exchanges in Kansas, Oklahoma, Missouri & Iowa....Lake Shore Short Line Tel. Co. organized at Warrentown, Wis....James Humphrey appointed mgr. of Central Tel. Co. properties at Lakeville & Rosemont, Minn.... Gilman (Wis.) Tel. Co. completed conversion to automatic operation; new system serves Gilman, Amora, Polly, Ruby & Huron....Sokata Automatic Tel. Co. will convert Estelline, S. D. to automatic operation.

Eureka Tel. Co., Corydon, Ind., selling stock; plans to rehabilitate swbd. & cable plant....Farmers Mutual Tel. Co., Lamsburg, Ky., considering purchase of new swbd....Walworth County Tel. Co., Selby, S. D., to construct 100 miles of new lines....North Plains Tel. Co., Dumas, Tex., completed incorporation & transfer of ownership; company spokesman said transaction was effected to prepare for possible expansion....Gulf States Tel. Co. completed installation of carrier equipment which creates direct circuit between Athens & Kaufman, Texas.

Ray W. Smith, Editor

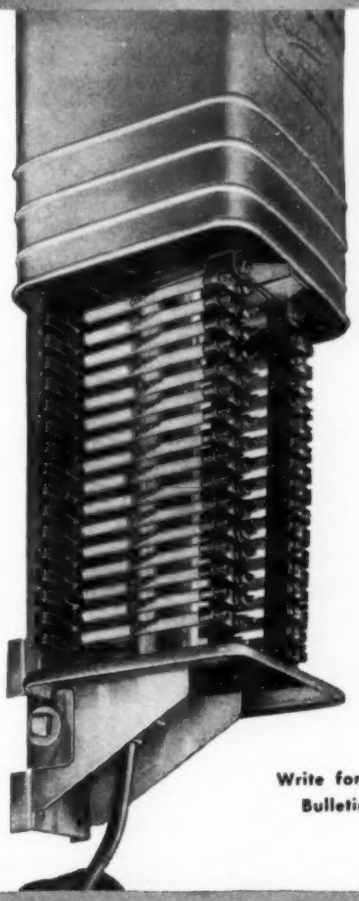
## THESE FEATURES MAKE IT *Reliable*

1. **Front-Positioned Binding Post Strips.**
   High dielectric plastic insulation.
   Long leakage path.
   Free from season cracking.
2. **Reliable Sawtooth Discharge Blocks.**
   Self-cleaning.
   No unnecessary grounding of line.
   Static dissipated without time lag.
3. **Square Weatherproof Cover.**
   Holds firmly in raised position.
   No contact with live parts.
   Corrosion Resistant Aluminum Alloy.



*Reliable*

# B-27 PROTECTED CABLE TERMINALS



These features—plus many more—are standard with Reliable's B-27 Cable Terminals. With a record of many years of fine performance, these terminals have time-proved dependability—a dependable life greater than that of the cable itself. Installation is speedy...the mounting bracket is attached without gaining the pole; then one man installs the terminal. B-27 is equipped with No. 27L 5-amp. ceramic fuses, available in 11, 16 and 26 pair capacities. Year after year, it's Reliable...for features that mean uninterrupted communications and quality service. In a word: It's RELIABLEity!

**Write for new Bulletin T**

*Reliable*

**ELECTRIC COMPANY**

3145 CARROLL AVENUE • CHICAGO 12, ILLINOIS

**OVER 40 YEARS' *Service* TO THE TELEPHONE INDUSTRY**

# Free Literature Department

New Product Literature of Practical Interest

*All literature described in this department may be obtained by sending in the handy blank at the bottom of this page.*

ELECTRONIC COUNTERS—New 4-page condensed catalog issued by the Potter Instrument Co. is brief guide to the company's complete line of High speed Electronic Counters, Scalers, Counter Chronographs and special electronic frequency measuring and computing equipment. In addition to the description of the available standard counters, a discussion of the electronic counting principle, methods of count detection and typical applications is included. —*Request FL* 301.

MANHOLE SHEAVE:—Double pulley manhole sheave is locked into position by tension on wire rope; no blocking—no bracing required. Unit has two carrying handles; cast aluminum frame is reinforced at throat, provides ample capacity for any probable load, combined with minimum weight; upper pulley 9½ inch diameter, lower pulley 6½ inch diameter, both with 1½ inch radius on face. Allows rope and cable to flow with ample clearance.—*Request FL* 302.

MULTI-PURPOSE CARRIER—Radio and wire-line applications are both covered by Lenkurt Type 44 Carrier equipment, described in a new folder, Form 44P4. This piece of literature shows how these units can be employed for voice, telegraph, telemetering, and control installations as well as a wide variety of combinations of the four uses.—*Request FL* 303.

PIPE MARKERS: Four-page bulletin adequately describes self-adhesive "Quik-Label" Pipe Markers manufactured by W. H. Brady Co. These Pipe Markers conform to ASA Standard No. A13 as to color and use of words for pipe indentification systems. Brief text, ample illustrations and a complete list of QUIK-LABEL Pipe Markers in stock present understandable picture of this useful new product.—*Request FL* 304.

ROPE CART:—Bulletin describes rope cart that is mounted on rubber-tired, roller-bearing wheels; can be easily towed, or moved about by hand on the job. Unit measures only 31 inches in width; fits in truck aisle for transportation when desired. —*Request FL* 305.

ROPE ROLLER:—Bulletin describes Flexo Pulling Rope Roller. Manufacturer claims the unit eliminates friction, wear, and waste of power; permits the rope to move smoothly from manhole to truck-mounted winch; allows the rope to move freely from side to side, following the windings on the drum.—*Request FL* 306.

"SNO-CAT"—Valuable specification sheet illustrating and describing 1949 SNO-CATS, presents the facts regarding power driven over-snow transportation for industry. *Request FL* 307.

TESTER:—A new 4 page folder describes and illustrates the latest complete line of Dynamic Mutual Conductance Tube Testers. Covers counter, portable and display models, listing technical and exclusive features.—*Request FL* 308.

TRUCK BODY: New Bulletin describes newly designed all steel service truck body that can be shipped partially knocked-down in unit assemblies, for complete assembly by the customer and which should simplify service body purchases by the Independent telephone companies, has just been released according to C. J. Stahl, president of Artisan Products, Inc. When purchasing the Model No. 60KD telephone service body package, the Independent telephone companies may now realize a substantial savings in shipping costs, compared to a completely built-up body.

Of all steel electric welded construction, the new service body is 75" long and is jigged-precision constructed and can be installed on any late model ½ ton chassis requiring no rear fenders.—*Request FL* 309.

TRUCKS: New bulletin describes the new FWD Model YU truck which is completely designed for heavy duty service. The manufacturer states the new YU is of modern design, appealing to the eye, sturdily built to give years of low cost service to the owner. —*Request FL* 310.

TELEPHONE ENGINEER PUBLISHING CORP.
7720 North Sheridan Road
Chicago 26, Illinois

Please forward the following literature described in the Free Literature Department of the April, 1949 issue of TELEPHONE ENGINEER AND MANAGEMENT: (Check information desired)

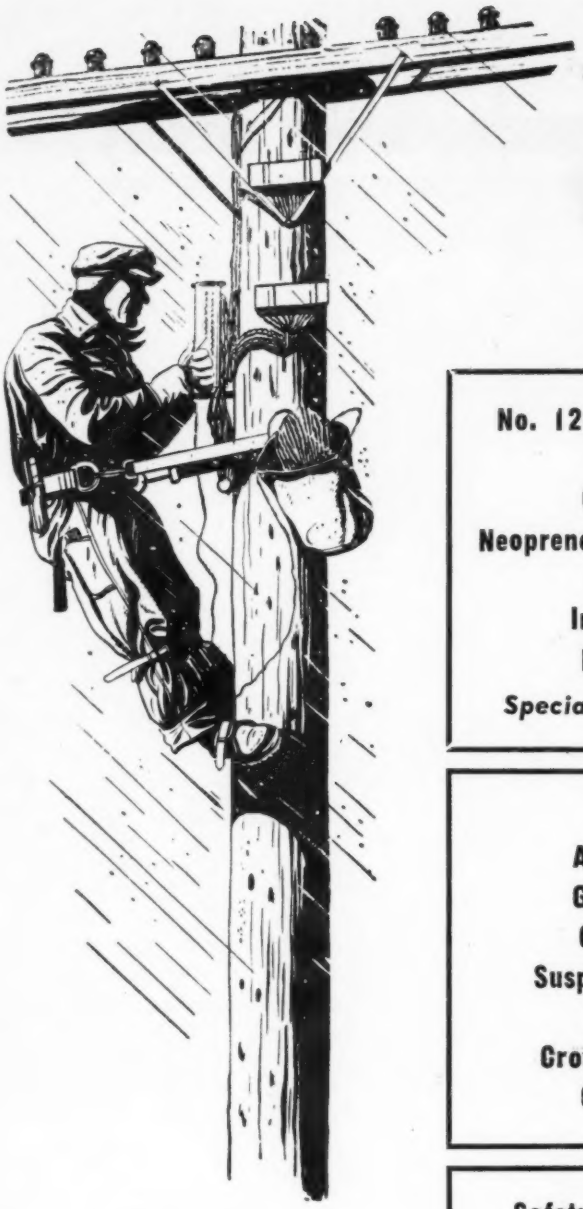
FL 300.....FL 301.....FL 302.....FL 303.....
FL 304.....FL 305.....FL 306.....FL 307.....
FL 308.....FL 309.....FL 310.....

Name ..... Title .....

Company .....

Street Address: .....

Town: ..... Zone: ..... State: .....



# LINE

## Construction Supplies

### *(Available Promptly)*

| | |
|---|---|
| No. 12-"85" Galvanized line wire<br>Guy Strand<br>Neoprene and Weatherproof drop wire<br>Interior Wire<br>Bridle Wire<br>*Special Prices — Write* | Nicopress Sleeves<br>Glass Insulators<br>Oak Pole Brackets<br>Cross Arms<br>Locust & Oak Pins<br>Drop Wire Clamps<br>SnubR Grips<br>Drop Wire Clips |
| Anchors<br>Anchor Rods<br>Ground Rods<br>Guy Clamps<br>Suspension Clamps<br>Brackets<br>Cross Arm Braces<br>Guy Guards | Arming Bolts<br>Machine Bolts<br>Carriage Bolts<br>Gal. Wood Screws<br>Galvanized Nails<br>Pole Steps<br>Drive Hooks<br>Washers |
| Safety Belts & Straps<br>Climbers<br>Pliers<br>Tool Bags<br>Canvas Buckets<br>Gloves<br>Plastic Plier Handles<br>Rope | Cant Hooks<br>Pike Poles<br>Tamping Bars<br>Shovels<br>Ladders<br>Reels<br>Diggers<br>Slack Pullers |

**BANTAM Magneto Handset Wall Telephones with battery compartment**

1600 ohm ..... $28.00
2500 ohm ..... 28.50

**LEICH 70C Desk Telephone with 26A Ringer Box**

1600 ohm ..... $31.00
2500 ohm ..... 31.25

**Dan-Mac "LIKE NEW" Telephones**

Kellogg Desk Stand ..... $5.00
Western Electric Desk Stand ..... 6.00

Ringer Boxes—
3 bar, 1600 ohm ..... 12.10
4 bar, 1600 ohm ..... 13.20
Alnico, 1600 ohm ..... 13.20
5 bar, 1600 ohm ..... 14.20

*All Guaranteed—Prompt Delivery*

DAN'L H. McNULTY,
President & Manager

*'Since 1926'*

## *TELEPHONE REPAIR & SUPPLY COMPANY*

1760 Lunt Avenue Chicago 26, Illinois

# CALCULAGRAPH CALCULATES IT

...FASTER!
...ACCURATELY!
...AUTOMATICALLY!
...EASIER!

It's sound business practice in any exchange—small or large—to rely on CALCULAGRAPH to compute and record elapsed toll time accurately to the second. Thus, all the revenue due is charged to every toll call and operators are relieved of detail work that slows switchboard service. Available in several models and adaptable to any installation from flush mounting to portable pedestal types. Every CALCULAGRAPH features low initial cost . . . dependable service year after year. Complete catalog data on request.

**CALCULAGRAPH COMPANY**
SUSSEX STREET • HARRISON • NEW JERSEY

# The NEW EXIDE-MANCHEX BATTERY

## for dependability and long life in TELEPHONE SERVICE

An important feature of the new Exide-Manchex Battery is the famous manchester positive plate with its unique lead button construction. The buttons, rolled strips of corrugated lead, are pressed into holes of the lead-antimony grid. Forming action expands the buttons and locks them securely in place. Only a comparatively small portion of the total lead is formed initially into active material . . . the remainder is available for gradual conversion in service.

Negative plates, separators and other elements are designed to match the long life and efficiency of the positive plates. All combine to provide a battery of exceptional power and long-lasting, trouble-free performance.

Use Exide-Manchex Batteries for all stationary requirements — common battery, emergency reserve, signaling, PBX and other applications. Their use is assurance of dependability, long life and low cost maintenance.

"Exide" *Reg. Trade-mark U. S. Pat. Off.*

**Exide**
**BATTERIES**

***1888 . . . DEPENDABLE BATTERIES FOR 61 YEARS . . . 1949***

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32 • *Exide Batteries of Canada, Limited, Toronto*

# MAKES BIG JOBS EASY!

**NO. 75 HEAVY DUTY FIRE POT**



With Quick Detachable Burner

• C&L heat tools are designed and preferred for every public utility use — 60 years of proved performance.

*Sold through leading jobbers*

## CLAYTON & LAMBERT MFG. CO.

1709 DIXIE HIGHWAY • LOUISVILLE 10, KY.

## INVEST YOUR "PIN MONEY" IN THE BEST

### LOCUST PINS

Locust wood is practically impervious to decay and is impenetrable to moisture. Because of its close-grained hardness locust can be machined into strong, long lasting pins of standard specifications that can be counted on to retain their size and shape.

### OAK BRACKETS

Oak pole brackets of unquestioned quality are in demand now as never before in the face of the qualifications necessary in the equipment and materials needed today to "keep 'em talking." Present day maintenance and repair have every reason to demand and get only the best.

### GLASS INSULATORS

Research and experiment have produced in Hemingray insulators a glass insulator that is better than any ever before offered.

Non-porous, non-deteriorating, uniform coefficient of expansion and high mechanical as well as high dielectric strength are some of the many qualities that rank Hemingray the "best on the line."

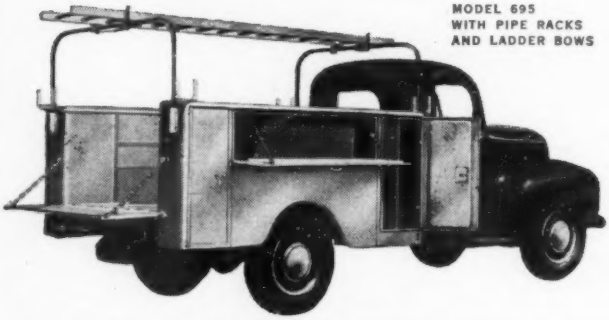
## BUCKEYE TELEPHONE and SUPPLY CO.

COLUMBUS 6, OHIO

## THE NEW MORRISON

# Carry-All

### Cuts the Cost of Your Installation and Service Calls!



MODEL 695 WITH PIPE RACKS AND LADDER BOWS

**The ALL-STEEL, ALL-PURPOSE SERVICE BODY that fits all standard commercial half to one-ton truck chassis!**

Here's the "Carry-All" that cuts your installation and service costs!

It carries everything — it's your shop on wheels — and your advertising billboard too! It has room for equipment and parts, controls and tools!

And it's always locked, loaded, ready to roll!

Get the complete story of the "Carry-All" — and start cutting installation and service call costs!

*Only the "Carry-All" has all these features:*

- ★ Rugged All-Steel Construction
- ★ Fits Standard Commercial ½ to 1-Ton Truck Chassis
- ★ 50½" Inside Width
- ★ Underbody Bridge-Type Construction
- ★ Lightweight, High Tensile Steel
- ★ Offset Reinforced Non-Skid Heavy Load Floors
- ★ Weatherproofed Compartments
- ★ Extra Roomy Convenient Side Boxes
- ★ Completely Precision Designed, Engineered, Tooled, Die Stamped, Assembled
- ★ Bassick Center Control of Single Closure Dual-Latch Paneled Doors
- ★ Wise-Key-Operated Locks and Handles
- ★ Interchangeable Standard Parts

*MORRISON "CARRY-ALLS" are Sold Through Any Franchised Chassis Dealer by Established Truck Equipment Distributors.*

## MORRISON STEEL PRODUCTS, INC.

SERVICE UTILITY MORRISON

"Carry-All" Service Body Division

615 AMHERST STREET, BUFFALO 7, N. Y.

# THE WHITNEY BLAKE BULLETIN

## DROP WIRE ADHESION

Why do we require adhesion of insulation to conductor in telephone drop wire? The first and foremost reason is that the crushing strength of the wire is increased appreciably when good adhesion is present. In Figure 1, curve A shows the performance of #17 neoprene jacketed wire having good adhesion as load is increased until crushing occurs. Curve B similarly shows crushing performance on identical wire having little or no adhesion. The wire with adhesion failed at 1,540 pounds while that with deficient adhesion at 1,300 pounds. With aging, the discrepancy in crushing loads increases.

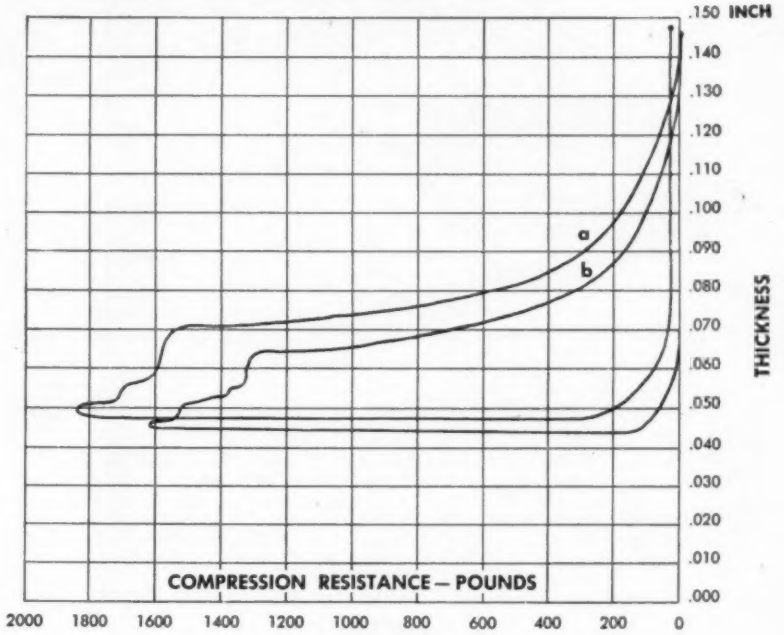



**FIGURE 1**

A second and important reason for requiring adhesion is that it facilitates removal of exactly the desired length of insulation with pliers or strippers in the splicing or terminating operation. Removal of adherent insulation is considered to be far less troublesome than frequent uncontrolled tearing of the rubber to an extent beyond that desired.

A third reason for requiring adhesion on drop wire is to prevent separation of the insulation from conductor in supporting clamps. When wire having little or no adhesion is supported in clamps, the insulation stretches with resulting decrease in crushing strength due to reduction in thickness. It is also subject to early failure due to atmospheric ozone cracking in this stretched condition.

Adhesion on drop wire can be evaluated by compression testing as was indicated in Figure 1. This method, however, is an indirect one and not satisfactorily differentiating for control purposes. A second method commonly used is to remove the insulation from a 10 inch specimen over its entire length except for a $\frac{3}{8}$ inch section near one end. The bare section of the conductors is then threaded thru a die a little larger than the conductor and an increasing load is applied to the bare end causing the rubber to be slipped off the other end. Loads in excess of 10 or 12 pounds are considered adequate provided they can be relied on to persist in service. With brass plated conductors, loads in excess of 20 pounds are customary.

For specification purposes, test methods which bear a direct and close relationship with service requirements are sought as the ideal. The Whitney Blake specification adhesion test consists in mounting the wire between compression jaws and then pulling a stripped end of the conductor. If the conductor pulls out, adhesion is unsatisfactory. If adhesion is maintained until the conductor breaks, adhesion is satisfactory.

The development of the Teleplate process for drop wire conductors, consisting in electroplating a chemically pure coating of lead on the conductor and then a brass plate coating of carefully controlled composition over the lead, has made it possible to obtain higher adhesion levels than ever before. The adhesion obtained is chemical in nature, being the result of reaction between the rubber composition and the brass. Many years' experience has proved that only this type of adhesion can always be relied upon to endure.

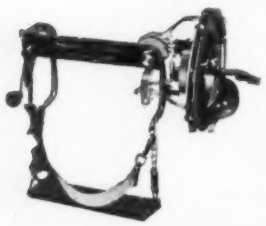
All Whitney Blake telephone distributing wire for outdoor service is manufactured with Teleplate conductors. It has adequate adhesion which will endure.

**Reprints of this advertisement are available on request.**

**THE WHITNEY BLAKE CO., BOX K, HAMDEN, CONN.**

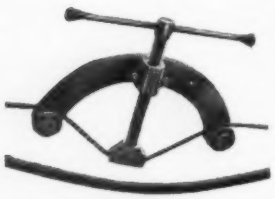
# CABLE SPINNING CUTS MAINTENANCE COSTS 2/3!

NOW'S the time to switch to the spun cable method of suspension—it cuts maintenance costs 2/3, adds extra years to the life of your cable, is quick and economical to install.
Our complete line of cable spinning equipment is used and recommended the nation over. Ask your jobber for detailed information about the famous Neale Cable Spinner, the selection of wire coiled especially for the Neale Spinner, the Little Giant Slack Puller and other essential maintenance tools.



**NEALE CABLE SPINNER**
Model "B" Spinner. Can be operated by one man.

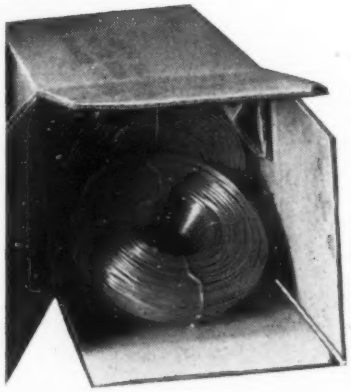
**MOLDED LEAD SHIELD**
Gives you more protection at the pole.



**LITTLE GIANT SLACK PULLER**
Pulls slack quickly, makes repairs easy.

## NEALE SPINNING OR LASHING WIRE

| Catalog Number | Description |
|---|---|
| 10A | .061 TYPE 316 STAINLESS STEEL SPINNING WIRE. Highest corrosion resisting spinning wire under all conditions. Approx. 650' each coil. GRADE: Stainless type 316 cold drawn wire (Chromium 16% to 18%; Nickel 10% to 14%; Molybdenum 2% to 3%). SIZE .061". TENSILE STRENGTH: 90,000/105,000 PSI. BREAKING LOAD: 250 lbs. minimum, 325 lbs. maximum. |
| 11A | .061 TYPE 430 STAINLESS STEEL SPINNING WIRE. Very high corrosion resisting wire under all conditions. Used with steel strand. Approx. 650' each coil. |
| 4A | .091 COPPERWELD SPINNING WIRE. Special soft. Recommended for use in areas subject to corrosive fumes of atmosphere. Used only with Copperweld strand. Approx. 325' each coil. |
| 6A | .090 COPPER SPINNING WIRE. Solid soft drawn spinning wire. Used in heavy corrosive areas. Used only with Copperweld strand. Approx. 325' each coil. |
| 7A | .091 ALUMINUM ALLOY SPINNING WIRE. High corrosion resistance Used with steel strand. Approx. 325' each coil. |



Aluminum wire is approximately one-third the weight of steel or copper wire of equivalent diameter. Alloy 52S1/4H with .091" diameter, has good strength characteristics with an ultimate tensile strength of 197 lbs. minimum load.

This wire has an endurance limit of 17,500 lbs. per sq. inch. This endurance limit is based on 500,000,000 cycles of completely reversed stress used in the R. R. Moore type of machine and specimen.

## WRITE FOR COMPLETE DATA REPORT ON THIS ALUMINUM SPINNING WIRE

| | |
|---|---|
| 12A | .091 STANDARD GALVANIZED SPINNING WIRE. Special soft annealed spinning wire. For use where corrosion conditions are light. Used with steel strand. Approx. 325' each coil. |
| 5A | .061 GALVANIZED SPINNING WIRE. Soft annealed spinning wire. Used on small cable up to and including 51 pair, 26 gauge, in areas where corrosion is light. Used with steel strand. Approx. 650' each coil. |

All types spinning wire furnished in Type 1A hub, cone shaped hub. Standard on all Neale Spinning machines.
Type 3A hub, straight hub, standard on Western Electric Pull Type Spinner, furnished on request only.
Spinning wire packed 6 coils to a carton.
Order Numbers 4A, 6A, 7A and 12A all contain approximately 325 feet per coil. Order Numbers 5A, 10A and 11A contain approximately 650 feet per coil.
In figuring the amount of spinning wire, add 10% to the length of the cable that is to be spun.

CABLE SPINNING EQUIPMENT CO.
TOPEKA, KANSAS Phone 3-1829

# EDITORIAL

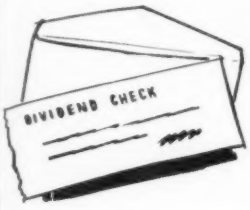
## *The Telephone Industry*

# Must Build--Build--Build

THE TELEPHONE industry must build and build and build, year in and year out, if it intends to keep up, in both quantity and quality, with present and future demands for telephone service in the United States.

There is an important factor in this situation about which we should not fool ourselves. If the telephone industry does not, as a private enterprise, keep up with the demand for telephone service in this country, then telephone communications are likely to become a governmental monopoly.

Already we can see the first stirring pointing in the direction of socialization of the telephone. There is now pending in Congress, legislation to put Rural Electrification Administration in the telephone business. The REA would be authorized to lend government money to suppliers of telephone service—and you can be certain that REA, a government agency, would see that it had voice in the managements to which it loaned.



This legislation is proposed as rural telephone legislation. It is aimed at putting more telephones on farms. But even assuming that that is the sincere and sole desire of its proponents, it can be the first step toward the socialization of the telephone industry in the United States.

Strange things have happened and are happening throughout the world these days, including, of course, within the United States. Legislative measures are now being debated within the Congress which would have been considered, only a few years ago, so radical that no politician would have dared to favor them then. In these times of such rapidly changing thought and action, no industry is immune from the touch—sometimes the fatal touch—of government.

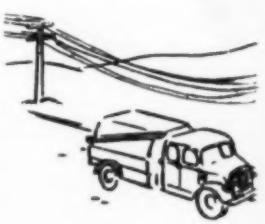
The fact that the telephone industry in the United States has become under private ownership and management, the greatest and most efficient of its kind in the world, will not save it from the touch of government if it slips up now or in the future. It must meet the demands—the ever increasing demands—of the public, year in and year out, for telephone service. It must do that, and do it well, or else. . !

And that goes for the small telephone exchange or company as well as for the large.

To meet this situation all units of the telephone industry, small as well as large, must build and build and build to meet the requirements of the public for telephone service. There has never been a time in the history of the industry when its building program was more important and more significant than it is now.

The bulwark of the telephone industry as a private enterprise is that it has always, in the past, met the demands upon it for service.

These demands have been greater than ever before during the second World War and since, and they are continuing to be heavier than ever before. To meet them is requiring and will continue to require a tremendous amount of construction, expansion, rehabilitation and replacement of the nation's great telephone plant. At the rate demands for telephone service are continuing, this expansion will have to go on, at a high rate, for years to come.



The importance of this construction becomes more apparent when it is remembered that if the telephone industry, as a private enterprise, fails for any considerable length of time to meet the service demands upon it, demand for socialization of the industry is certain to arise.

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The STROMBERG
HI
KL
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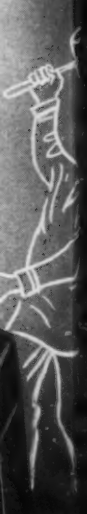
# G CARLSON 1243 Telephone is

**PROOF AGAINST . . .**

| | | | | |
|---|---|---|---|---|
| bumps | thumps | drops | blows | shoves |
| pushes | shocks | impacts | strokes | knocks |
| raps | slaps | smacks | slams | bangs |
| whacks | bounds | bounces | *and batterings!* | |

**AS WELL AS . . .**

| | | | |
|---|---|---|---|
| water | moisture | wetness | dampness |
| dews | humidity | mugginess | saturation |
| rain | floods | ice | snow |
| leaks | dunkings | duckings | splashings |
| sousings | immersions | *and dippings!* | |



**And if you can think of any other abuses in the general categories of Water and Breakage — add them!**

**The 1243 can take them — as has often been convincingly proved. Such ruggedness means greater subscriber satisfaction and decreased service costs. Check your stock needs today.**

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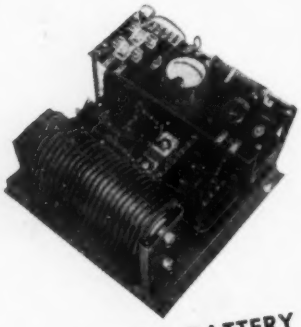
*Excellence in Electronics*

# . . . serves the great TELEPHONE INDUSTRY in many essential ways



IMPROVED BATTERY PERFORMANCE

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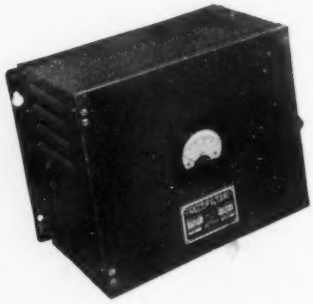
**RECTICHARGER***

Raytheon RECTICHARGERS are fully automatic, have no moving or expendable parts, need no maintenance.

*Reg. U. S. Patent Office.



DEPENDABLE DC POWER

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Provides smooth, humless, low cost DC power from AC source. Eliminates battery service and replacement costs.

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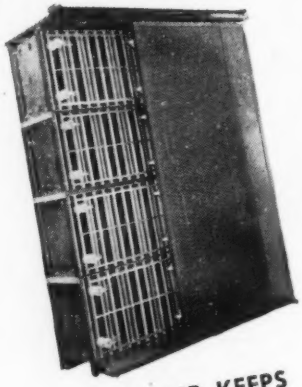

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Cleans air electronically, removes airborne dust and dirt from exchanges.

HIGH QUALITY, LONG LIFE

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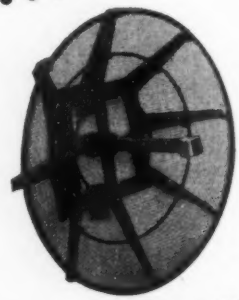
**POWER TUBES**

Power and special purpose tubes produced in a wide range of types and capacities for communications, control, high or low voltage power rectifying and other applications.



POINT-TO-POINT COMMUNICATION

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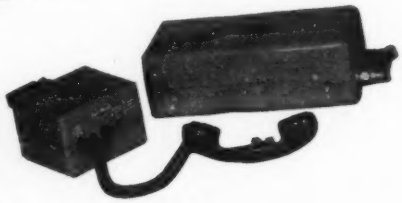
**MICROWAVE EQUIPMENT**

For television and simultaneous transmission of multiple telephone, telegraph, and facsimile messages.



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MOBILE TWO-WAY

**RADIO TELEPHONE**

Fixed and mobile units. Compact . . . low-cost . . . trouble-free . . . shock-tested . . . minimum drain . . . easy to install.

RAYTHEON

*Excellence in Electronics*

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# NEWS BRIEFS

## Frank B. Gordon Named Gen. Mgr., Fort Dodge Company

Frank B. Gordon has been appointed general manager of the Fort Dodge (Iowa) Telephone Co. to succeed Thomas J. Griffith who died several weeks ago. Mr. Gordon also was elected to the board of directors of the company.

Born and raised in Fort Dodge, Mr. Gordon has been associated with the company for the past 39 years. He began his career with the company as a member of a construction crew, received various promotions and was made wire chief in 1915, a position he held continuously until 1936 with the exception of the time spent in the armed service during World War I.

Following Mr. Griffith's appointment as general manager in 1936, he became superintendent and has held this position until named to the managership.

Closely associated with Mr. Griffith for many years, he has taken an active part in the growth and improvement program of the Fort Dodge Telephone Company.

## Intermountain Completes Erwin, Tenn., Cutover

A new automatic telephone system was recently cut into operation at the Erwin, Tenn. exchange of the Intermountain Telephone Co.

A. E. Reynolds, general manager of Intermountain Telephone Co., said that the changeover cost approximately $175,000. Erwin is the second upstate Tennessee town to be cutover to automatic operation.

Reynolds said Intermountain expects to install the system in Elizabethton.

## New Telephone Company Elects Will Lauper, President

Will Lauper was elected first president of the Hollandale (Wis.) Co-op Telephone Co., a consolidation of six companies, at the initial meeting of the organization.

Joseph Oimein was elected vice-president; Francis Ryan, secretary and treasurer, and Mrs. Lillian Strand, operator.

The merged companies were the Ridgeway-Jonesdale-Hollandale Telephone Co.; Waldwick-Jonesdale-Hollandale Telephone Co.; Perry-Hollandale Telephone Co.; Moscow Telephone Co.; Barneveld Telephone Co. and Hollandale Telephone Company.

***The Michigan Independent Telephone Association has announced the appointment of F. B. TWIGG as secretary. He will make his headquarters in the association's new offices at 105 E. Washentaw Ave., Lansing.***

***In addition to several years in engineering and general administrative work, Mr. Twigg spent 10 years in the telephone industry and has a thorough knowledge of the communications business.***

## L. G. Saunders Named Wire Chief of Lincoln T. & T.

Appointment of L. G. Saunders as wire chief of the Lincoln (Neb.) Telephone & Telegraph Co. has been announced by M. C. Walker, district plant manager. Mr. Saunders will have supervision of plant operations of the company with respect to service in Lincoln and Lancaster county. He succeeds Jay Pugsley who retired March 1.

Ralph Connors of Nebraska City succeeded Mr. Saunders as assistant wire chief at Lincoln.

Mr. Saunders has been with the company in the Lincoln plant department 31 years and has been assistant wire chief since 1941.

Mr. Pugsley was first employed as a telephone operator at Woodbine, Ia., in 1901. He became associated with the Lincoln Telephone & Telegraph Co. two years after its organization. He had been district plant chief at Beatrice and toll wire chief and plant methods supervisor at Lincoln before being appointed wire chief in 1934.

Recent appointments also include E. A. Ernst of Syracuse as wire chief at Nebraska City, Elmer Neujahr of Wahoo as manager as Syracuse and Joe Abrams of Plattsmouth as wire chief at Seward.

## M. M. Redding Joins Mediapolis (Ia.) Company

M. M. Redding, Waterloo, Iowa, has been appointed assistant manager of the Mediapolis Mutual Telephone Co. He will be assistant to H. T. Rasmus, manager.

Mr. Redding has been employed by the Western Electric Co.

## General Appoints E. F. Gahan Supervisor of Information

The General Telephone Corporation has announced appointment of Edwin F. Gahan to the newly created post of supervisor of information. Mr. Gahan was formerly associated with Merrill Lynch, Pierce, Fenner & Beane, and before that was with Doremus & Co.

## Columbia (Pa.) Tel. Co. Completes Cutover

The Columbia Telephone Co. recently completed conversion of its Mt. Joy and Columbia, Pa. exchanges to automatic operation.

With Marietta and Mountville already using the dial system, approximately 6200 of the company's sub-

scribers were linked to the automatic service, leaving only the Elizabethton area with manually operated telephones.

In addition to erecting a new, modern plant, the Columbia Telephone Co.'s progressive step to dial service has involved a vast amount of cable laying and technical hookups.

## New Company Formed At Stockton, S. D.

The Stockton (S. D.) Mutual Telephone Co. has been organized with 15 stockholders who have raised $20,000 to construct a new telephone system. The January ice storm completely ruined the old Stockton telephone system.

## Automatic Service Planned For Lititz & Manheim, Pa.

The new automatic telephone system for Lititz and Manheim, Pa., is scheduled to go into operation next Fall, the Denver & Ephrata Telephone Co. has announced.

New telephone buildings are finished but equipment remains to be installed, said C. E. Eaby, of Ephrata, who was re-elected company president at a recent meeting of the company stockholders. Other officers elected are: Bertha Brossman Eaby, vice president; Monroe Lausch, secretary; and Jacob Buch, treasurer. All the officers are also directors in addition to William B. Brossman.

It was voted at the meeting to increase the capital stock of the corporation, partly to cover costs of the new automatic systems.

During 1948, 1,656 new telephones were installed by the company, it was reported. Automatic service for Ephrata was completed last August at a cost of $109,000.

## Dean M. Barnes Elected Vice President of Associated Tel. Co.

Service in every department of the Associated Telephone Company well qualifies Dean M. Barnes to fill his newly acquired position as a vice president of Associated Telephone Co., Ltd. Barnes was elected to the position at a meeting of the Board of Directors held at the General Offices in Santa Monica, California. He will also continue in his precent capacity as chief engineer.

Born in Vernon Center, Minn., Barnes completed his schooling in Vernon City and Minneapolis, and divided his collegiate career between Columbia University and the University of Minnesota. He was graduated from the college of engineering and architecture, now the Institute of Technology, at the University of Minnesota with a degree of Bachelor of Science in Electrical Engineering, and since that time has taken various extension courses in engineering, subjects relating to engineering and its general application, and other general educational subjects.

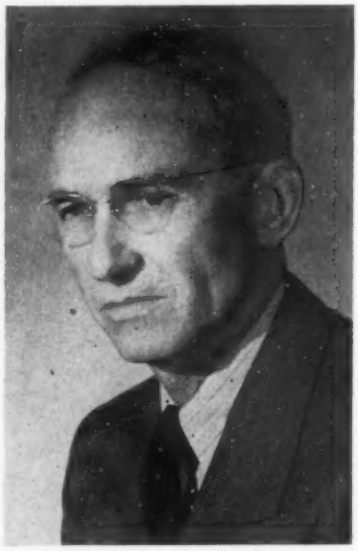
***ROBERT C. TAIT (left) was named president of the Stromberg-Carlson Co. at recent meeting of the company's directors. Mr. Tait succeeded DR. RAY H. MANSON who became board chairman succeeding WESLEY M. ANGLE (right) who was elected honorary board chairman. (See FORTNIGHTLY TELEPHONE ENGINEER, April, 1949, page 32.)***

## Merger Is Planned by Two Telephone Groups

The directors of the Mountain View Telephone Co., Yettem, Calif., have under consideration a proposal to merge with the Farmers Telephone Exchange, Orosi, Calif.

The directors hope to complete the transaction so the merger can be completed about July 1st.

Nishan Tashjian is the president of the board. Other directors are: R. Heflebower, D. Beinhorn, A. Robinson and C. D. Straw.



***DEAN M. BARNES***

## Pioneer Group to Promote Hobbies For Independents

Carl D. Brorein, president of the Independent Telephone Pioneer Association, recently appointed a Hobby Committee to promote and encourage the development of hobbies among the members of the Pioneer association.

At present the committee is composed of three members—R. C. Reno, Chicago, chairman, H. B. Couch, Topeka, Kan., and Mayme Workman, Springfield, Ill. However, it is expected that the membership of the committee will be enlarged later.

Promotion of hobbies within the Independent telephone industry by an organization having contact with individuals has been a point of interest of many Independents, and inasmuch as the Pioneer association's membership is principally made up of individuals, the officers and directors of the association believe its activities could well encompass this worthwhile undertaking.

Generally speaking, the best time to develop a hobby is during active years of service. At retirement, hobbyists look forward to leisure hours, filled with interest and pleasure and, as frequently happens, find their income sup-

*(Please turn to page 74)*

# Washington Bureau REPORTS

**BY ROLAND DAVIES and FRED HENCK**

### *Toll Rate Structures*

THE INDEPENDENT telephone industry has been invited to participate in a comprehensive review and study of interstate and intrastate telephone toll rate structures, to be conducted jointly by the FCC, staff experts of member commissions of the National Association of Railroad and Utilities Commissioners, and telephone industry representatives.

Principal objective of the study, a formalized plan for which was developed at a recent meeting of the NARUC Special Telephone Commissioners' Committee and the FCC-NARUC Staff Committee, will be to secure greater uniformity in the rates for interstate and intrastate telephone toll services. The NARUC-FCC group will also review information as to future possibilities of reducing costs in long-distance traffic operations, especially for short-haul distances, through new technological developments and improved and simplified methods of handling calls. The study will be conducted on a fact-finding basis, in close cooperation with the representatives of the Bell System and Independents.

The only distribution of copies of the Staff Committee report to the Commissioners' Committee at the meeting in Washington last month has been to the chairmen of state commissions. Telephone Committee Chairman Matt L. McWhorter, Vice Chairman of the Georgia Public Service Commission, is understood to be anxious to obtain the comments of the state commissions to aid his committee in the preparation of its report to NARUC, to be presented at the association's annual convention in Cleveland this coming August.

The telephone committee also will submit a conclusive and definite report on Western Electric Co. costs, profits, and prices to the annual convention. The report will contain a recommendation that, as expressed in the committee's report to the NARUC last November in Savannah, there does not appear to be any immediate necessity for an exhaustive investigation of Western Electric profits and prices, with a large staff at an estimated cost of more than $1 million.

Besides the full discussion and major attention to the interstate-intrastate toll rate situation, the NARUC staff Committee submitted reports to the Commissioners Committee at the Washington meeting on the separation manual and the Western Electric situation.

The separations manual review include a reaffirmation of the present separation procedure, with only a minor change to permit a different method of separation of license contract payments. In connection with Western Electric, arrangements have been made by the NARUC-FCC group with the Bell System for a quarterly review of 1949 operations pertaining to the manufacturing company. Also before the committee is a final analysis of the 1948 operations of Western Electric and a possible further study of the rate of return of the Bell System manufacturing-supply affiliate, including review of profits by product classes and proposed changes in depreciation methods.

As a backdrop to the studies of interstate and state toll rates was the report of the A. T. & T. Long Lines Department that its rate of return started to dip down toward the latter part of 1948 and continued a downward trend during the first two months of 1949. If the trend of diminished earnings continues, the Long Lines Department might have to apply for an interstate rate increase.

### *Poage Bill*

THE PROGRESS of proponents of the Poage Bill to provide for loans by the Rural Electrification Administrator for rural telephone expansion and development was just about nil during the latter part of March and early April.

With the Rules Committee tied up with the Taft-Hartley repeal measure and the outlook of further lengthy sessions on minimum wage legislation, the telephone bill slid quietly to the background. The Agriculture Committee itself put priority on its measure to prohibit interstate shipment of colored oleomargarine, and was successful in winning a rule on the measure and obtaining House passage.

Under the new House rules, Agriculture Committee Chairman Harold D. Cooley (D., N. C.) could call up the measure for floor consideration in the absence of Rules Committee consideration. There appeared to be no disposition on Rep. Cooley's part to take such action as TELEPHONE ENGINEER & MANAGEMENT went to press, however, because of his feeling that the House leadership is not attempting to sidetrack the bill but is merely tied up with the crush of other legislation.

With the passage of time, one possibility is emerging which had not been visualized before—that there is something of a chance that the rural telephone measure will not be pushed through to enactment at this session.

The possibility has arisen because of slow Congressional progress in acting on President Truman's Fair Deal program. With the Senate tied up for several weeks in the civil rights filibuster, and both houses still to tackle such highly controversial legislation as Taft-Hartley amendments and minimum wage, the imperative appropriations bills will begin to pile up in the near future. Then, too, lengthy Senate debate impends on ratification of the Atlantic Pact.

Another factor is the disposition of the southern Democrats and Republicans, particularly in the Senate, to take a dim view of the present level of government spending in an attempt to show a balanced budget without further taxes. While the

Poage Bill supporters note that it calls for loans to be repaid with interest, the fact remains that initial appropriations would have to be made both for the loans and for REA administration of the program.

Most Congressmen would rather pass out loaded cigars to their constituents than do anything to offend the farm vote. The chances are still good that some sort of rural telephone legislation will slide through. But the elements of time and economy assume greater importance as the weeks go by, and will become almost paramount when a typical Washington summer begins to make Congressmen yearn for their front porches at home.

Affiliation of the Communications Workers of America with the CIO—virtually a foregone conclusion in the opinion of most observers of the labor scene—will not produce anything resembling a united front by the nation's telephone unions, it is becoming apparent.

The stumbling block to nationwide telephone union unity—in addition, of course, to various independent groups are now not affiliated with any national labor organization—is the International Brotherhood of Electrical Workers (AFL), which has a nucleus of manufacturing company workers in its drive for organization of telephone workers. The IBEW, a union of great financial strength, has another good weapon—a very attractive insurance and pension plan for its members.

In the running battle between the CWA and IBEW, which started when the CWA recommended CIO affiliation to its members and IBEW President Dan Tracy demanded that IBEW be removed from the affiliation ballot because of its phraseology, the AFL union has commented that although "for years CWA leaders have bitterly condemned the CIO," they are now urging their members to join the CIO. The AFL spokesman said "Funny business, isn't it? For years CWA leaders have bitterly condemned the CIO. Now that the CWA is broke and heavily in debt—and falling apart piece by piece nationally—the same leaders suddenly urge their members to go CIO. And the same leaders will continue to hold their jobs."

Laying stress on the former membership in the National Federation of Telephone Workers (CWA's predecessor) of groups which now form a major part of the CIO Telephone Workers Committee, the IBEW said "How can you get unity from groups which have been fighting among themselves for years and will continue to fight among themselves?"

### *FCC Chairman Speaks At ACA Convention*

AN INDICATION that the FCC is laying increased emphasis on private mobile radiotelephone systems as distinguished from those operated by telephone companies was given by FCC Chairman Wayne Coy in his address before the Armed Forces Communications Association national convention in Washington.

The distinction drawn by Mr. Coy between the two types of services appeared to be particularly significant because of the impending issuance by the Commission of its final rules and allocations for the safety and special services. The rules were expected momentarily as TELEPHONE ENGINEER & MANAGEMENT went to press.

Mr. Coy included in his talk a prediction that within five years he expects to see "half a million vehicles radio-equipped to serve their country in war or peace", in contrast to some 200,000 authorizations now in effect. He alluded to the radiotelephone systems as a means of communication that is potentially one of our most powerful instruments of national defense."

The FCC Chairman gave credit to the police organizations of the country for having "blazed the trail for this type of service before the war." In calling attention to the "unprecedented progress that has been made since V-J Day in developing other classes of mobile communications", he said that the 265,000 land and mobile transmitters now authorized represent five times the prewar number.

He cited particularly the radiotelephone system developments for the police, utilities, fire departments, railroads, intercity bus lines, trucks, taxis, the petroleum industry, and amateur radio as representing far-flung radiotelephone networks which could be coordinated in their operations for national defense purposes.

In his talk, the FCC Chairman did not refer at length to the landline telephone industry, other than to cite the postwar construction and expansion programs.

Another address was by Leighton H. Peebles, Assistant Director of the National Security Resources Board, and World War II Chief of the War Production Board's Communications Division. Mr. Peebles, after a review of the recent meeting of the NSRB Telephone and Telegraph Operating Industry Advisory Committee, said it is planned later to explore the available facilities and necessary controls in a war or mobilization emergency for the international communications and radio broadcasting industries.

## Coming Conventions

*Nebraska Telephone Association*, Lincoln Hotel, Lincoln, April 19-20.

*Illinois Telephone Association*, Hotel Pere Marquette, Peoria, April 27-28.

*Indiana Telephone Association*, Claypool Hotel, Indianapolis, May 4-5.

*Pennsylvania Independent Telephone Association*, Abraham Lincoln Hotel, Reading, May 9-10.

*Kansas Telephone Association*, Jayhawk Hotel, Topeka, May 17-18.

*Wisconsin State Telephone Association*, Park Hotel, Madison, May 18-19.

*New York State Telephone Association*, Jamestown Hotel, Jamestown, May 25-26.

*North Dakota Telephone Association*, Gardner Hotel, Fargo, June 9-10.

*Oregon Independent Telephone Association* and *Washington Independent Telephone Association*, Davenport Hotel, Spokane, Wash., June 17-18.

*California Independent Telephone Association*, Biltmore Hotel, Los Angeles, June 23-24.

*Rocky Mountain Telephone Association*, Newhouse Hotel, Salt Lake City, Utah, Sept. 22-23.

*Michigan Independent Telephone Association*, Olds Hotel, Lansing, Sept. 22-23.

*United States Independent Telephone Association*, Stevens Hotel, Chicago, October 10, 11, 12.

*Missouri Telephone Association*, Governor Hotel, Jefferson City, Mo., November 14-15.

*South Dakota Telephone Association*, Cataract Hotel, Sioux Falls, Nov. 9-10.

# Standard Construction and Installation Practices

By B. C. Burden

***In Part I of a two-section article covering standard telephone construction and installation practices, Mr. Burden starts a valuable discussion of uniform methods for performing specific new construction or maintenance tasks.***

STANDARD practices are essential for a *uniformly good grade* of telephone service. They offer the further advantage of lower cost maintenance. The use of standardized items of material is of equal importance with standardized practices and avoids costly experiments with inferior and short life materials or equipment.

Examples of poor service, resulting from non-standard practices, are the many cases of poor transmission, due to lack of knowledge of standard methods of splicing line wires and usatisfactory station installations that reflect on the company and cause inconvenience to subscribers.

One may ask, "*Just what is meant by a standard practice?*" In the writer's opinion, *a standard practice is a uniform method for performing a specific task in either new construction or maintenance.* The standard practice should embrace both the method of performing a work operation and the materials and tools to be used. The practice is one, which experience and judgment of many telephone companies have found to be best from the standpoint of economy, service results, and simplicity. Once a standard practice is set up, it continues in force until revised or replaced by a better practice.

To be truly effective, a standard practice should be issued in printed form, usually as "handbook instructions". The average worker has difficulty in retaining work details in his mind and tends to acquire the habit of doing work in line with his own notions. The result is inefficiency and often dissatisfaction on the part of the workers.

***B. C. BURDEN, Telephone Engineer, Lincoln, Nebraska.***

Written practices, on the other hand, can be referred to from time to time and the quality of the work is thus maintained at or above standard. Worker morale is improved. New employees are more easily trained, when given handbooks containing practices pertaining to their work.

Standard practices contain tables and charts, which are of value to workers and supervisors. For example, a wire sag or tension table gives definite data for pulling line wires to the correct tension and a table of pole hole depths specifies the proper depth to which poles should be set.

The listing of materials and tools is an important function of the standard construction practices. Such lists assure that only approved materials and tools will be used.

To illustrate the use of standard practices, examples of construction and installation practices are discussed by this article. These fall into three general classes for rural districts; namely, pole line construction, drop wire installation, and station installation.

Pole line construction begins with the locating of the poles along the right of way. The poles should be placed in the right of way just outside the boundary line between the roadway and the abutting private property. An easement is of course required for crossarms overhanging the property or for poles set on private property.

It is advisable to avoid heavy tree and shrub growths in locating the poles. If permission can be obtained from the property owners, the poles may be erected on private land, away from the shrubs lining the road; otherwise taller poles and/or sidearms will have to be utilized to adequately clear the trees. These meth-

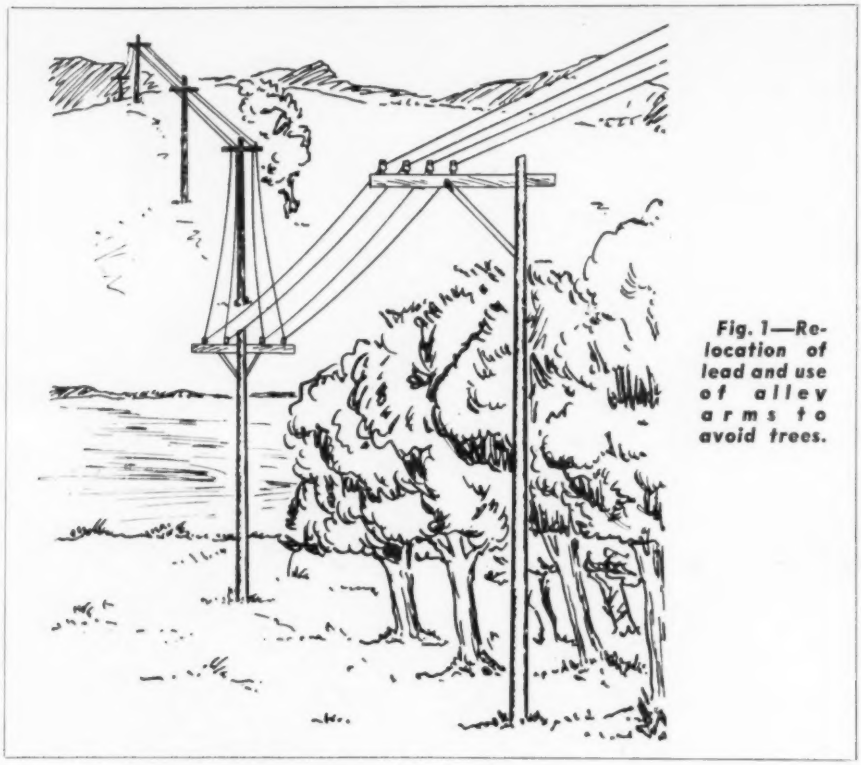


*Fig. 1—Relocation of lead and use of alley arms to avoid trees.*

ods are shown in *Figure* 1. When the owner agrees to the complete eradication of vegatative growths, a bulldozer may be found to be an economical and effective method of removing heavy brush. Expensive trimming can thus be avoided for a number of years. Weed killing chemicals can also be successfully used to retard heavy growths.

It is important to locate poles in straight sections with corners and avoid long curves that require the guying of every pole. The poles should be made reasonably accessible to maintenance men and for this reason, locations in swamps or on steep banks should be avoided, if possible.

Dead end and corner poles should be placed where they can be properly guyed. A two-pole corner is often preferable to a single pole with buck arm construction to avoid the use of an overhead guy to stub pole on the other side of the road. Overhead guys are generally exposed to power lines on the opposite side of the road from the telephone lead.

Poles should be spaced in accordance with *Table I*, which gives pole spacings for rural leads carrying 2 to 30 wires in the *heavy loading area*.

Because of present high labor costs, it is economical to dig pole holes with earth boring equipment. Large exchanges make use of heavy earth borers in heavy construction work. The smaller exchanges utilize portable digging units, either of the motor driven type powered by a gasoline engine operated generator or the mechanical type operated from the power take-off on the construction truck. Pole hole depths are given in *Table II*. (See page 38.)

To set light weight poles (about 200 pounds or less) two or three men may be employed. The pole is placed so that its butt rests just over the pole hole with a digging bar resting in the hole to enable the pole to slide down more easily. One or two men, as required, support the pole on their shoulders and hands, and assist in raising and steadying the pole. The third man pushes on the upper part of the pole with a pike pole. When the pole is erected sufficiently high, the pole will slide into the hole.

### Use of Pole Derrick

FOR HEAVIER poles, a pole derrick and winch is the most economical and satisfactory arrangement. In this case the winch line is fastened a little above the balance point to enable the butt of the pole to hang down. Operate the winch slowly and steadily to raise the pole off the ground, meanwhile having a man hold the butt steady. When the butt is over the hole, ease the pole slowly into the hole.

Hold the pole in position with grounded pike poles, while backfilling and tamping. Be sure to thoroughly tamp the earth, while backfilling to assure a solid foundation for the pole. A mechanical tamper can be used to reduce the time required for this process. An important precaution is not to shovel snow or ice into the hole along with the dirt. The snow will melt and loosen the tamped earth. Be sure

***Table I—Pole Spacings For Rural Leads Carrying Two to 30 Wires in Heavy Loading Area***

| No. of Wires | Avg. No. Poles per Mile | Span Length in Feet (1) Normal | Min. | Max. | Pole-Size Feet Length (2) | No. Class | Brackets | No. of Pole Fixtures Crossarms 8'6" | 10-pin (3) |
|---|---|---|---|---|---|---|---|---|---|
| **Standard Construction—East and West Lines** | | | | | | | | | |
| 2 | 25 | 210 | 168 | 231 | 16 | 9 | 2 | — | — |
| 4 to 6 | 25 | 210 | 168 | 231 | 16 | 9 | — | 1 | — |
| 8 to 10 | 25 | 210 | 168 | 231 | 16 | 8 | — | — | 1 |
| 12 | 25 | 210 | 168 | 231 | 20 | 8 | 2 | 0 | 1 |
| 14 to 20 | 36 | 146 | 117 | 160 | 20 | 8 | — | — | 2 |
| 22 | 36 | 146 | 117 | 160 | 20 | 6 | 2 | — | 2 |
| 24 to 30 | 40 | 132 | 106 | 145 | 20 | 5 | — | — | 3 |
| **Standard Construction—North and South Lines** | | | | | | | | | |
| 2 | 25 | 210 | 168 | 231 | 16 | 9 | 2 | — | — |
| 4 to 6 | 25 | 210 | 168 | 231 | 16 | 9 | — | 1 | — |
| 8 to 10 | 25 | 210 | 168 | 231 | 16 | 8 | — | — | 1 |
| 12 | 25 | 210 | 168 | 231 | 20 | 8 | 2 | — | 1 |
| 14 to 20 | 30 | 176 | 141 | 194 | 20 | 8 | — | — | 2 |
| 22 | 30 | 176 | 141 | 194 | 20 | 6 | 2 | — | 2 |
| 24 to 30 | 36 | 146 | 117 | 160 | 20 | 5 | — | — | 3 |
| **Long Span Construction** | | | | | | | | | |
| 2 | 16 | 330 | 264 | 363 | 20 | 9 | 2 | — | — |

*Note:—Pole sizes shown in the table are minimum. Taller poles are required at road crossings and farm driveways, as shown in Figures 2 and 3.*

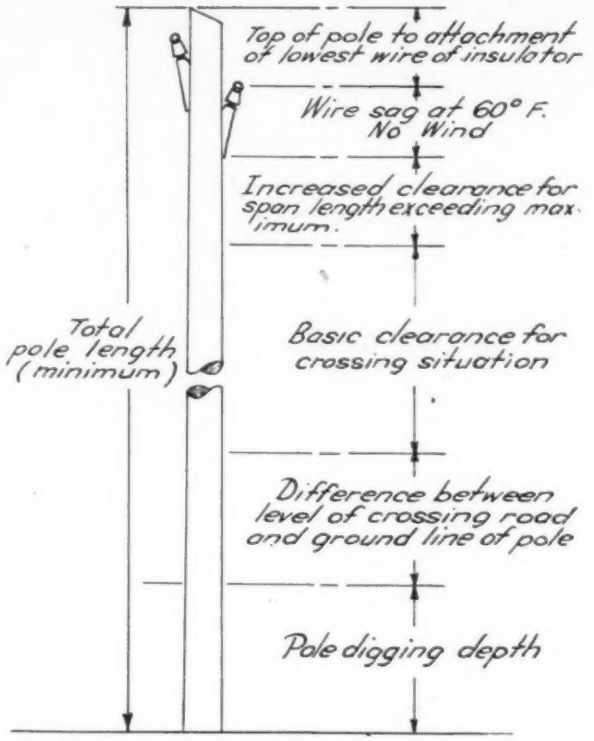

Top of pole to attachment of lowest wire of insulator
Wire sag at 60° F. No Wind
Increased clearance for span length exceeding maximum.
Total pole length (minimum)
Basic clearance for crossing situation
Difference between level of crossing road and ground line of pole
Pole digging depth

Fig. 3 (Left)—Factors affecting minimum pole length.

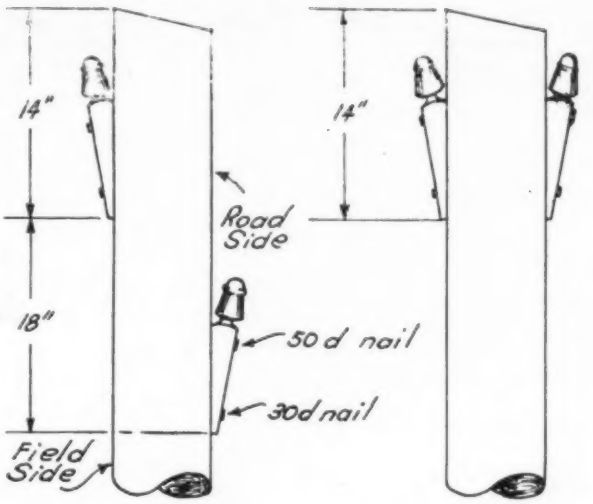



Fig. 4 (Above)—Standard mounting for wood brackets.

to keep the pole vertical while backfilling.

The boring of the holes and the erecting of the poles can be done together, if a truck with earth boring equipment and pole derrick on the same chassis is available. The hole is first bored to the desired depth. Then the winch line picks up the pole lying nearby and the butt of raised pole is guided into the hole and lowered therein. The truck can then move to the next location to repeat this operation. Only two men (three, if the pole is large and heavy)

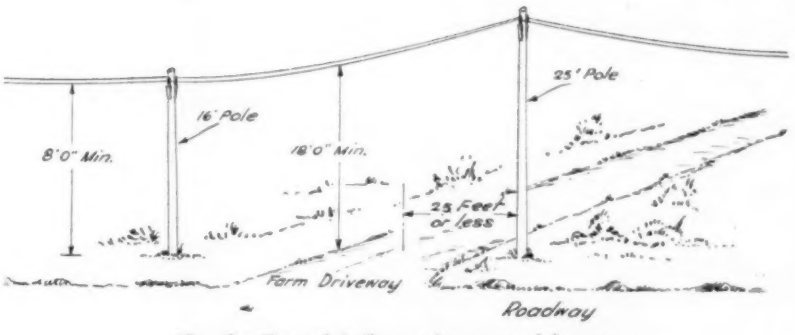



Fig. 2—Use of taller poles over driveways.

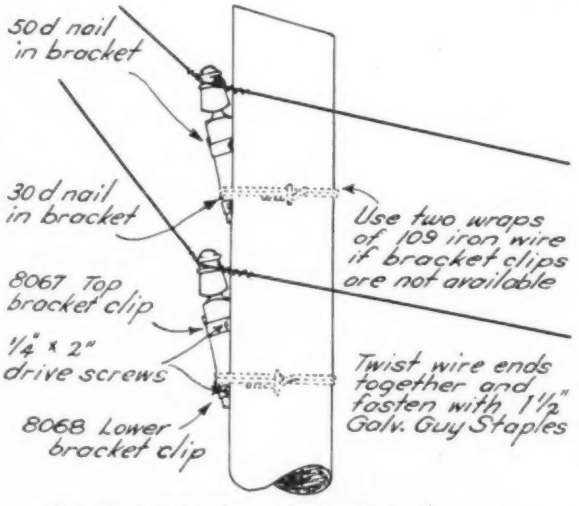

50d nail in bracket
30d nail in bracket
8067 Top bracket clip
1/4" x 2" drive screws
8068 Lower bracket clip
Use two wraps of 109 iron wire if bracket clips are not available
Twist wire ends together and fasten with 1½" Galv. Guy Staples

Fig. 5—Reinforcing pole brackets at corners.

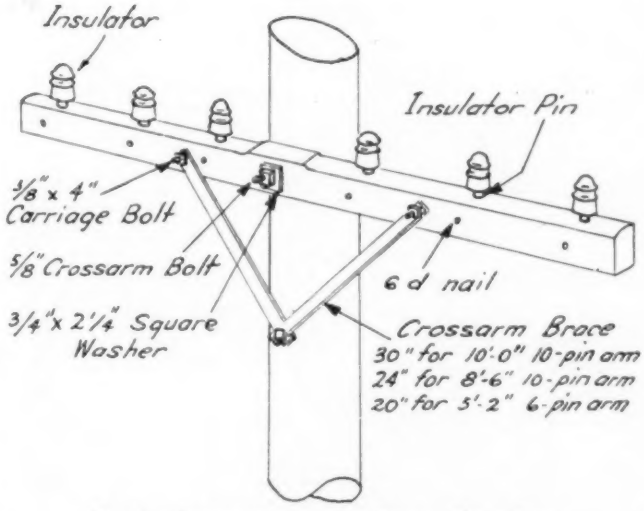



Fig. 6—Crossarm and hardware dimensions.

### *Table II—Pole Hole Depths*

| Total No. of Wires to be Carried | Length of Pole in Feet | East & West Lines Depth of Holes | | North & South Lines Depth of Holes | |
|---|---|---|---|---|---|
| | | Cedar Poles | Pine Poles | Cedar Poles | Pine Poles |
| 2 to 10 | 16 | 3'6" | 3'6" | 3'6" | 3'6" |
| 2 to 6 | 20 | 3'6" | 3'6" | 3'6" | 3'6" |
| 8 to 10 | 20 | 4'0" | 4'0" | 3'6" | 3'6" |
| 12 | 20 | 4'0" | 4'0" | 3'6" | 3'6" |
| 14 to 22 | 20 | 4'0" | 4'0" | 4'0" | 4'0" |
| 24 to 30 | 20 | 4'6" | 4'6" | 4'0" | 4'6" |
| 2 to 6 | 25 | 4'0" | 4'0" | 4'0" | 4'0" |
| 8 to 10 | 25 | 4'0" | 4'6" | 4'0" | 4'0" |
| 12 | 25 | 4'6" | 4'6" | 4'0" | 4'0" |
| 14 to 22 | 25 | 5'0" | 5'0" | 4'6" | 4'6" |
| 24 to 30 | 25 | 5'0" | 5'6" | 5'0" | 5'0" |
| 2 to 30 | 30 | 5'6" | 6'0" | 5'6" | 5'6" |
| 2 to 30 | 35 | 6'0" | 6'0" | 5'0" | 6'0" |
| 2 to 30 | 40 | 6'0" | 6'0" | 6'0" | 6'0" |
| 2 to 30 | 45 | 6'6" | 6'6" | 6'6" | 6'6" |
| 2 to 30 | 50 | 7'0" | 7'0" | 7'0" | 7'0" |

are needed for this work, one to drive the truck and operate the winch and the other to operate the earth borer controls and handle the winch line, and guide the pole being raised.

Wood pole brackets are placed as shown in *Figure* 4. Where the pole carries both crossarms and brackets, the upper bracket is placed so that the wire in this bracket is 2 feet below the wires on the lowest crossarm. The brackets may be located on the opposite sides or in the same side of the pole, as required by circumstances. The 18-inch spacing between the wires on the bracket may be reduced to 12 inches in situations of inadequate clearances.

At corner poles or dead ends, use bracket clips (*Figure* 5) to reinforce the brackets and prevent them from pulling out. Where more than two wires are to be carried, crossarms should be used, as indicated in *Table* 1. Standard dimensions of crossarms and hardware are shown in *Figure* 6. Crossarms are assembled on the pole, as indicated in *Figure* 7. Standard spacing for crossarms on a pole is 24 inches, but this may be reduced to 18 or 12 inches where necessitated by ground clearance requirements.

Sidearms, such as that shown in *Figure* 8, are often required to provide clearance of the line wires from trees. Ten foot or 6-foot crossarms are used for this purpose, according to the amount of side clearance needed or the number of wires carried.

Double arms are required at railroad crossings, corners on a single pole where the pole is 40 feet or greater, corner or two poles, dead ends, and changes in grade greater than 10 per cent of span length for up-pulls and 5 per cent for down-pulls.

Buck arms are needed at single pole corners (*Figure* 9) and at branch-offs from a main line that cannot be made on a two-pole corner. In the latter case only the crossarm on the branch-off is double armed at the junction pole, but the pins are respaced on one side of the main line crossarm and the part of the buck arm under it to provide the necessary climbing space.

### Guying Poles

PROPERLY installed guys are needed at dead ends and corners in an open-wire lead to hold the line in position and avoid breaking of poles or fixtures.

The size of guys depends on the lead-to-height ratio (*Figure* 10) of the guyed pole and the number of wires carried. The least strain on the guy occurs when the lead is equal to or greater than the height.

The angle of the line at the corner also has an important bearing on the size of the guy used to guy the corner pole. Tables that have been published in Telephone Engineer Handbook Tables give the proper guy sizes for different situations of lead to height ratio and angle of line ("pull") at the corner pole.

When one guy is utilized to support a corner pole, the guy should be placed so that it bisects the line angle. One method of doing this is shown in *Figure* 11. A Dillon bisector is a convenient tool for determining the proper location of the guy. A single guy is used in the fol-

(*Please turn to page* 70)

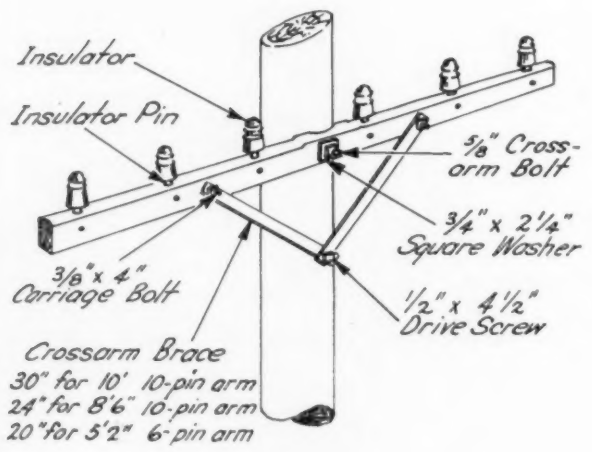

Insulator
Insulator Pin
5/8" Cross-arm Bolt
3/4" x 2 1/4" Square Washer
3/8" x 4" Carriage Bolt
1/2" x 4 1/2" Drive Screw
Crossarm Brace
30" for 10' 10-pin arm
24" for 8'6" 10-pin arm
20" for 5'2" 6-pin arm

**Fig. 7—Typical crossarm assembly on pole.**

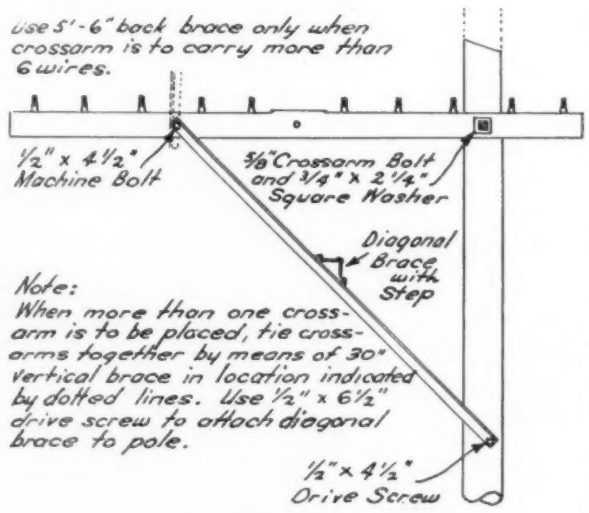

Use 5'-6" back brace only when crossarm is to carry more than 6 wires.
1/2" x 4 1/2" Machine Bolt
5/8" Crossarm Bolt and 3/4" x 2 1/4" Square Washer
Diagonal Brace with Step
Note:
When more than one crossarm is to be placed, tie crossarms together by means of 30" vertical brace in location indicated by dotted lines. Use 1/2" x 6 1/2" drive screw to attach diagonal brace to pole.
1/2" x 4 1/2" Drive Screw

**Fig. 8—Side arm construction.**

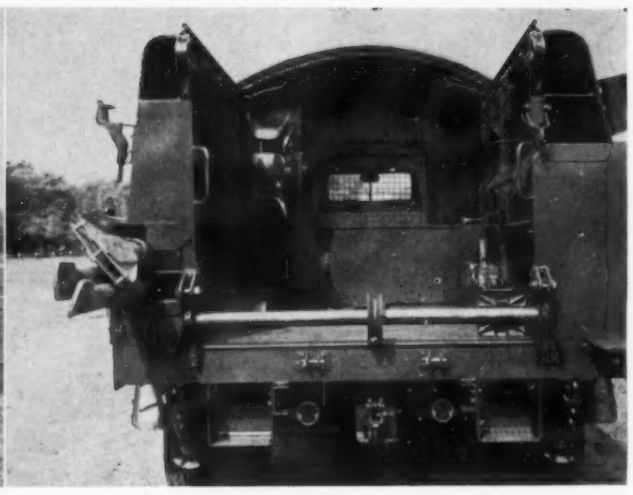


***FIGURE 1 (left)—Construction truck with body designed and manufactured by Highway Trailer Company. FIGURE 2 (right)—Rear view of Highway Trailer Company construction and maintenance truck. Note deep compartment spaces for miscellaneous long tools and for pole derrick legs, also use of pole derrick supports at rear corners of truck bed.***

***Figure 3—Left side view of York Hoover Corporation light duty construction and maintenance truck.***

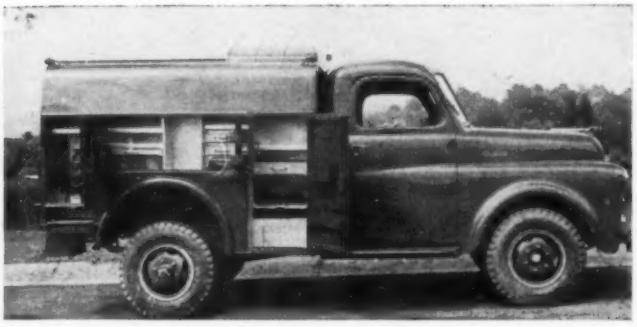


***Figure 4—Right side view of York Hoover Corporation light duty construction and maintenance truck.***

# Recent Improvements & Developments

## *In Construction amd Maintenance Trucks*

*By John S. Reed*

Lincoln T & T Co.
Lincoln, Neb.

WITH SERVICE connection demands at new high figures, telephone organizations must continue to expand their facilities to provide service for additional subscribers. At the same time, they must take care of their plant maintenance and replacement programs. Because of high labor and material costs, there is a need for improved methods and equipment that will enable the desired objects to be obtained at the lowest possible cost.

In line construction and maintenance work, an important factor in keeping down expenses is the use of adequate and properly designed motor vehicle equipment. At the present time there is a demand for light duty construction and maintenance trucks suitable for three or five-man gangs. Service trucks, are also in demand.

At the time horse-drawn drop wagons were in vogue, large crews of brawny men were needed to handle the heavy work involved in erecting a pole lead. Pole holes had to be laborously dug by hand with shovels or earth augers. Poles had to be erected with pike poles, or, when they were too heavy for piking, with a pole gin. Such work was extremely slow and wasteful of labor. Now, thanks to the development of trucks equipped with properly designed compartment body for tools and materials, and provided with pole derrick, power winch, and a variety of portable power-driven tools, much smaller crews can accomplish the same work with far greater speed and efficiency.

*Figure 6—Light maintenance truck with body designed and made by the American Coach and Body Company.*

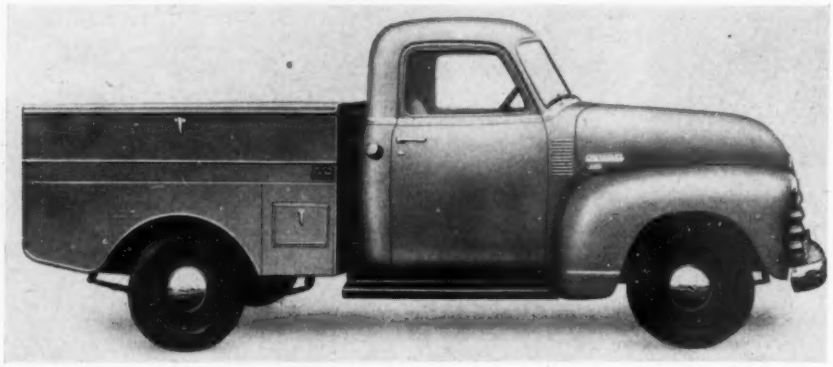


*Figure 7—Light service (installation and maintenance) truck body on ½-ton chassis. Body designed and manufactured by Artisan Products, Inc.*

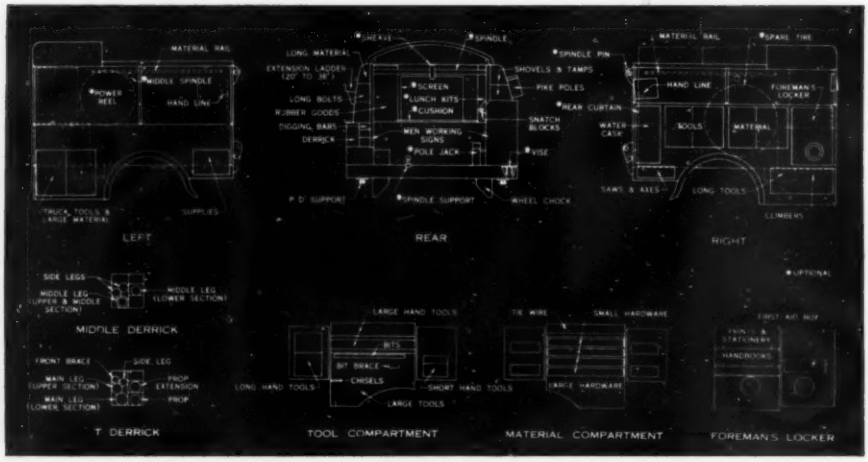



*Figure 8—Compartment layout of typical construction body manufactured by Highway Trailer Company.*

Telephone organizations are finding that recently developed motor vehicle equipment now more closely meets their needs than ever before. It is the purpose of this article to discuss the popular makes of such equipment and point out features that make them valuable for construction and maintenance work.

*Figures* 1 *to* 7 illustrate well known makes of construction and maintenance truck bodies. The truck chassis is the foundation on which a well-designed telephone truck is built. The chassis must be of suitable size and design, in order to be adequate for the work required of it and to last the wifetime of the compartment body associated with it. The last named feature eliminates the needless expense and inconvenience of transferring the body to another chassis, when the original chassis is worn out.

In selecting the vehicle, consideration should be given to the size of the chassis. The most useful sizes for the telephone field range from ½-ton to 2-tons. The ½-ton chassis is adapted to installation and light maintenance trucks carrying one or two men. The ¾-ton is suited for light maintenance or construction trucks not equipped for a pole derrick. The 1- to 2-ton sizes are capable of mounting a pole derrick, power winch, and power take-off equipment. The ¾- to 2-ton trucks will accommodate 3 to 5 men, three in the cab and two in the body in the rear. Such trucks are provided with a sliding roof over the body to

*Figure 5—Rear view of York Hoover Corporation truck.*

shelter the men riding in the rear. In occasional cases, a heavier chassis may be needed, as when it is desired to carry both a pole derrick and a heavy duty earth borer for placing large poles, for example. (There are now available earth digging equipment suitable for light duty trucks, such as the Tel-E-Lect pole hole digger operated from the truck motor through a power take-off shaft, or the Foushee and Heckendorn gasoline powered earth auger.)

The proper wheel base dimension of the chassis is another important factor in the selection of the chassis. The wheel base should be chosen to properly locate a given length of body on the chassis. This location should be such as to correctly distribute the load between the front and rear wheels and prevent excessive overhang of the body at the rear. Too much overhang may result in a far greater load on the rear wheels than on the front wheels, making for difficult steering and resulting in hard wear on the tires. In extreme cases, as when the truck has an earth borer attached to its rear, excessive overhang may cause

the front end of the truck to rise when the auger is being pulled out of a hole during boring operations in wet clay. This condition also occurs in the case of trucks equipped with a pole derrick.

On the other hand, when a certain make and size of chassis is desired without regard to wheel base dimensions, the body length will have to be restricted to keep body overhang at the desired minimum.

Another important point to consider is the size of the tires used in the chassis. Tires should be selected to stand the load placed on them, as overloaded tires will wear out very rapidly with resultant expensive replacement. Dual rear tires are usually needed on the heavier chassis weights. The air pressure in the tires will have to be carefully watched, as too low or too high a pressure will increase tire wear.

When the truck is provided with a pole derrick, the derrick will exert a downward pressure on the rear springs and tires, often compressing them to a dangerous extent. Such strain can be prevented by utilizing pole derrick supports attached to the rear corners of the truck as shown in *Figure* 2.

*Table I* lists typical specifications for a ¾-ton truck used in light maintenance work.

***Table I—Typical Specifications For a ¾-Ton Truck Used in Light Maintenance Work.***

| | |
|---|---|
| Chassis—Cab Weight With Body | 4650 |
| Chassis—Cab Weight Only | 3125 |
| Compartment Body, With Tool Rack | 1525 |
| Manufacturer's Gross Vehicle Weight | 5500 |
| Chassis—Cab Weight With Body | 4650 |
| Allowable Normal Pay Load | 850 |
| Weight Distribution With Body, As Follows: | |
| Front | 2250 |
| Rear | 2400 |
| Total | 4650 |
| Left Front | 1250 |
| Right Front | 1000 |
| Total | 2250 |
| Left Rear | 1240 |
| Right Rear | 1160 |
| Total | 2400 |
| Tire Capacity: | |
| Normal 40 pounds Air Pressure Front | 3200 |
| Normal 40 pounds Air Pressure Rear | 3200 |
| Average Overload Allowance Per Tire 10%. | |
| Tire size front—7.00 x 15—6 ply | |
| Tire size rear—7.00 x 15—6 ply | |
| Body Length—84" | |
| Front of Body to Center of Rear Axle | 48" |
| Rear Overhang | 36" |
| Overall Width of Body | 72" |
| Compartment Width | 14" |
| Width Between Size Compartments | 44" |
| Height of Compartment | 36" |

## Compartment Body

THE COMPARTMENT body, as the name implies, is made up of compartments containing trays, drawers, racks, and hooks for accommodating small tools and materials used in construction and maintenance work.

The layout of the compartments should be such as to bring all items into view when a compartment door is opened or a drawer is pulled out. This is an important consideration in preventing overstocking, as the result of certain items not being readily found during reloading periods. Overstocking adds unnecessary weight to the truck and reduces its carrying capacity.

There should be a place for everything that has to be carried. Several different items should not have to be placed in one tray because room cannot be found for each group. If mixed items are placed together, the more brittle objects will be damaged by contact with other and harder objects. Material hooks are a convenience for carrying pole climbers, linemen's belts, rope, and slack blocks. In this connection, it is desirable to place these hooks inside compartment to protect the leather and rope goods from the weather. The climber should be kept separate from leather belts and ropes to prevent damage to these items by contact with the climber gaffs.

Space should be allotted for carrying workers' clothing and lunch boxes, a feature especially appreciated by workmen. Provision should be made also for carrying a water cask in an accessible location on the truck. Where there is insufficient room, the cask is sometimes carried on the running board or on a front fender. It is desirable, though, to place the cask in a separate compartment with a drinking cup dispenser as shown in *Figure* 4.

A compartment for blue prints, time reports, work specifications, and the like will protect these items from loss or damage.

Test sets should be carried in a compartment with sponge rubber lined shelves. This feature is desirable to minimize damage to the equipment.

The compartments are made of a light gauge metal as is permitted for adequate wear to reduce the truck weight. The use of a welding process to join seams and secure the body

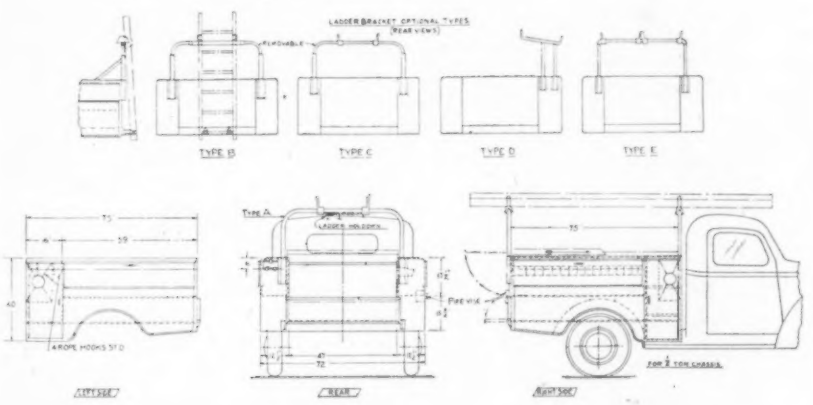



***Figure 9—Compartment layouts and ladder rack arrangements for Artisan Products, Inc. service truck body.***

(*Please turn to page* 76)

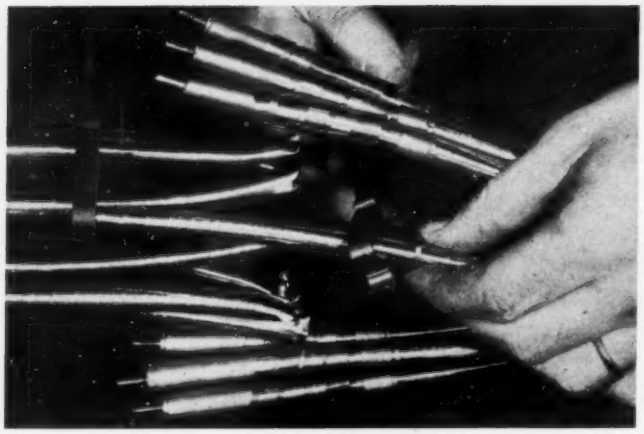


*Fig. 2—A copper ring is slipped over the coaxial and crimped to keep the steel tapes from unwinding.*

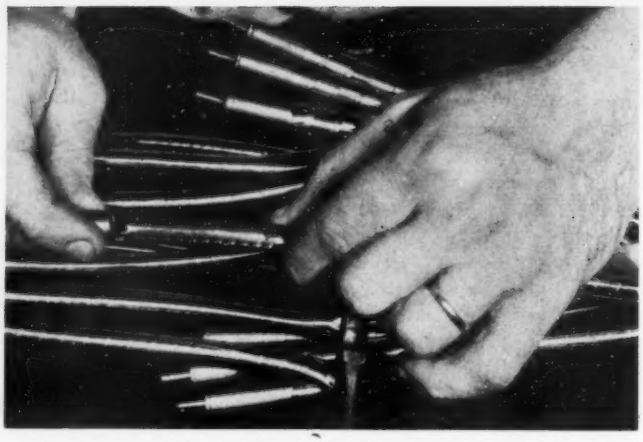


*Fig. 3—A short copper sleeve is added to hold the steel tapes of the completed splice.*

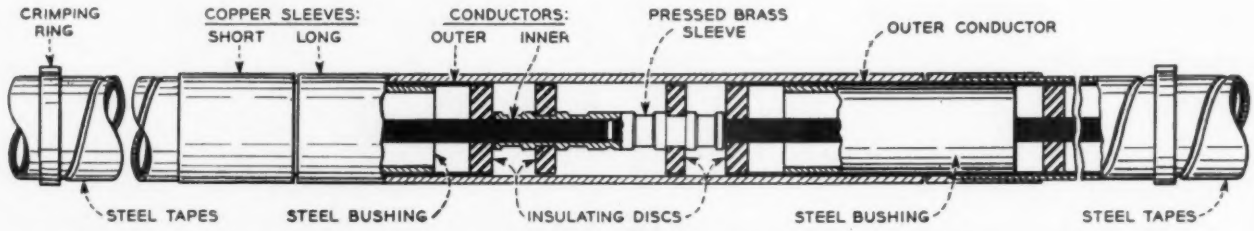



*Fig. 1—Sectional view of completed splice showing all components in their final positions. The inner conductors are connected by a pressed sleeve, and the outer ones by a rolled sleeve.*

# Splicing of Coaxial Conductors


*By V. H. Baillard*

Plant Materials Engineer
Bell Telephone Laboratories Inc.


SINCE THE first commercial installation of coaxial cable in 1936, the expanding network has incorporated two major structural types and two sizes of conductor, as well as minor changes in structural details. This progression of physical forms, together with growing transmission experience and revisions of objective for the characteristics of the complete system, have influenced the methods developed for splicing coaxial conductors and the special tools and materials that are required.

During this period, the procedures for joining two coaxials have been a series of compromises between the transmission ideal—a splice which would duplicate exactly the impedance of the cable itself—and the practical performance of relatively complicated manual operations by cable splicers in manholes, on aerial platforms and in open pits dug in the ground, with such tools and equipment as the field forces of the associated companies could reasonably be expected to carry and use.

The first coaxials installed were about 0.270 inch in inside diameter and had hard rubber insulating discs. Some years later the insulating discs were changed from hard rubber to lower loss polyethylene. Recently, a larger size coaxial having an inside diameter of 0.375 inch was introduced and is the present standard. Briefly, this coaxial consists of an inner conductor of solid copper wire 0.1004 inch in diameter, polyethylene insulating discs spaced at one-inch intervals, an outer tubular conductor of copper 0.012 inch thick with a longitudinal seam, and an outside double layer of steel tapes, each about $\frac{3}{8}$ inch in width and 0.006 inch thick, applied so that the gaps of the inner layer are covered by the outer one.

V. H. BAILLARD

Two basic types of conductor joining are involved in the present standard splicing method. The inner conductors are connected by a pressed sleeve, and the outer ones by a rolled sleeve. *Figure* 1 is a cross-sectional view of a complete joint, showing all the components in their final positions. The principal steps in splicing are shown in *Figures* 2 *through* 11. In the photographs, the splicer is at work on the right-hand side of the last of the eight coaxials. The remaining seven right-

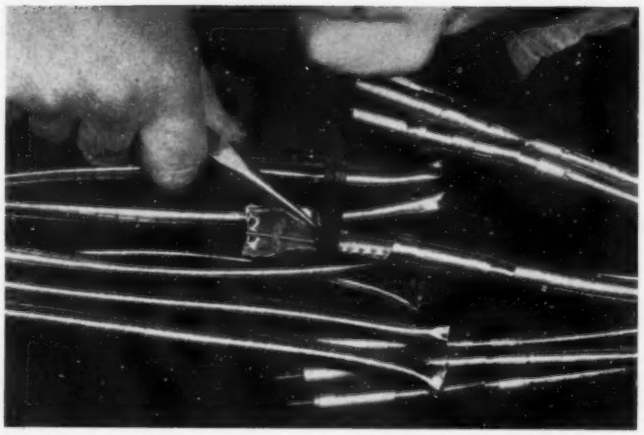


*Fig. 4—The outer conductor is cut by tearing it against coaxial pliers.*

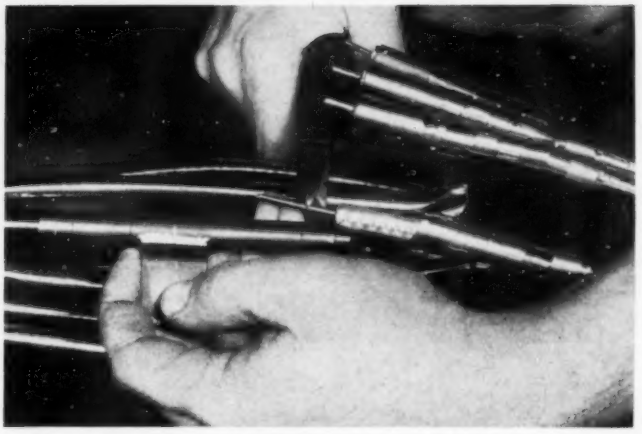


*Fig. 5—The inner conductor is cut to project ½ inch from the outer one.*

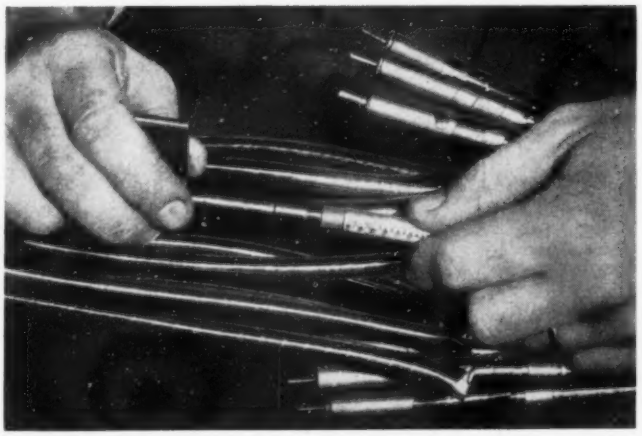


*Fig. 6—A steel bushing is pushed into the coaxial with a special tool called a coaxial scale.*

*Fig. 7—Placing the long copper sleeve used to join the outer conductors.*

hand coaxials have already been prepared for joining to those on the opposite side. In actual field operations, all the coaxials on each side are thus prepared before any splice is completed. This permits electrical tests to be made between the inner and outer conductors of the two cables just prior to connecting them.

As shown in *Figure* 2, a copper ring is slipped over the coaxial and crimped at a predetermined point with specially designed coaxial pliers. This tool not only does the crimping but holds the coaxial during other splicing operations, such as cutting the outer conductor. The crimping ring locks the steel tapes in place and keeps them from further unwinding during subsequent operations in which it is necessary to loosen the tape ends.

To hold the steel tapes of the completed splice, a short copper sleeve is slipped in place, as shown in *Figure* 3. The outer conductor is cut by grasping it with the coaxial pliers at the desired point, *Figure* 4, pulling it back with long-nose pliers and tearing it against the sharp edge of the pliers. The 10-gauge inner conductor is then cut, *Figure* 5, so that it projects about ½ inch from the end of the outer conductor.

A steel bushing is pushed into the end of the coaxial, *Figure* 6, by a special tool called the coaxial scale, until the bushing is about ¼ inch back from the end of the outer conductor. This scale not only serves thus as a mandrel but also as a measuring device for dimensioning the splice. The bushing provides the base on which the copper outer sleeves are subsequently rolled, since the outer conductor itself is much too weak mechanically to withstand the high compressive forces involved in making the rolled sleeve joint. *Figure* 7 shows the operation of placing the long copper sleeve that will subsequently be used to join the outer conductors.

The opposite coaxial is prepared in essentially the same manner except, as illustrated in *Figure* 8, only a short copper sleeve is placed to hold the steel tapes, since the longer one, for joining the outer conductors, is already in position on the opposite side of the splice. Inner conductors are joined by a pressed brass sleeve, using a sleeve presser, as shown in *Figure* 9. Extra insulating discs are then snapped over this inner sleeve to insure its concentric support, *Figure* 10, and the larger copper sleeve, for joining the outer conductors, is pushed into position. This is followed by rewinding the loosened steel tapes and positioning the short copper sleeves, as shown in *Figure* 11, which illustrates a joint ready for rolling. The final operation is the rolling of the entire joint with the special tool.

The use of three sleeves, the two short ones to hold the steel tapes, and the longer one to join the outer conductors, was the suggestion of E. L. Alford. Prior to this improvement, a longer single sleeve was used to perform both functions. It had the disadvantage, however, that the operation of sliding the single sleeve over the steel tapes sometimes created copper slivers which caused short circuits or low dielectric strength between the inner and outer

(*Please turn to page* 46)

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"Do you mean to tell us that this streamlined beauty is a complete magneto telephone!"

It sure is, and if you'll just let us tell you about the remarkable operating and economic advantages of this new Leich magneto telephone—you'll be even more enthusiastic. For this is not just an improvement in appearance: this is a magneto telephone that offers more sound, practical advantages than you ever dreamed would be incorporated in one instrument.

First of all, it's a complete, compact magneto telephone, except for batteries. Then . . . it's both a wall and desk model. You can either set it on a desk or mount it on the wall. You don't change, buy or add a thing. This one telephone meets every installation requirement.

Secondly—this new Leich magneto handset gives you complete insurance whenever and however you may convert to common battery operation. All you do is remove the generator and generator face plate and you have a regular Leich 600 common battery telephone. Which common battery telephone, by the way, can also be used as a wall or desk model.

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Add these features up: One telephone for every installation need; almost instantaneous conversion to common battery; new high standards of dependable, trouble-free operation. You might add also, that it's the most compact, attractive magneto telephone ever developed. Your total by now should be . . . that here indeed is a real sensible investment.

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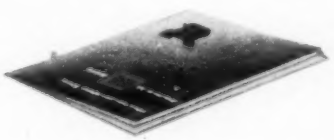

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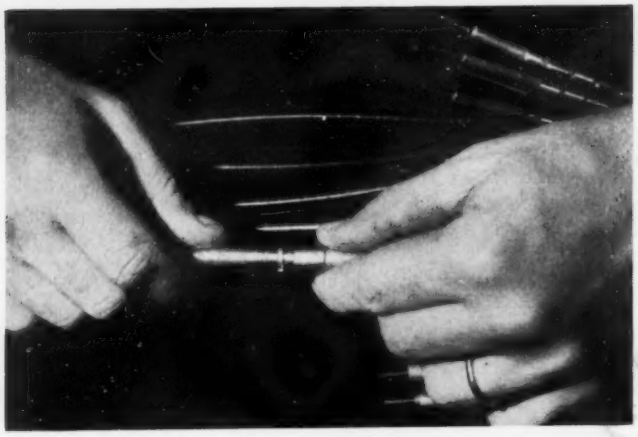


*Fig. 8—A short sleeve is used on the opposite coaxial to hold the steel tapes.*

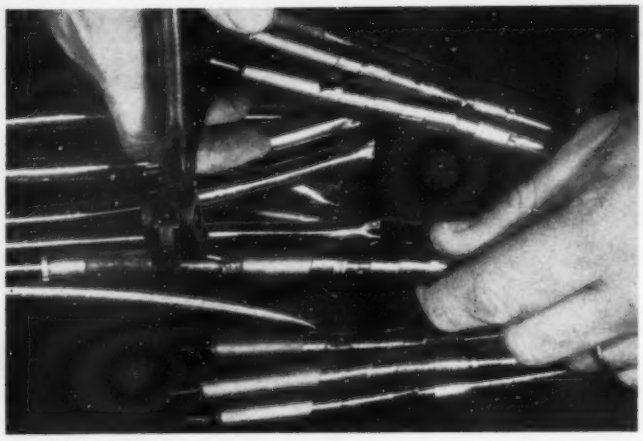


*Fig. 9—Inner conductors are joined by a pressed brass sleeve by means of a sleeve presser.*

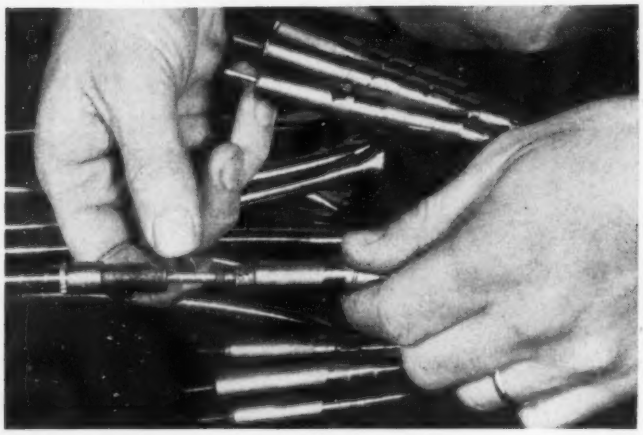


*Fig. 10—Extra insulation discs are snapped over the inner sleeve to insure concentric support.*

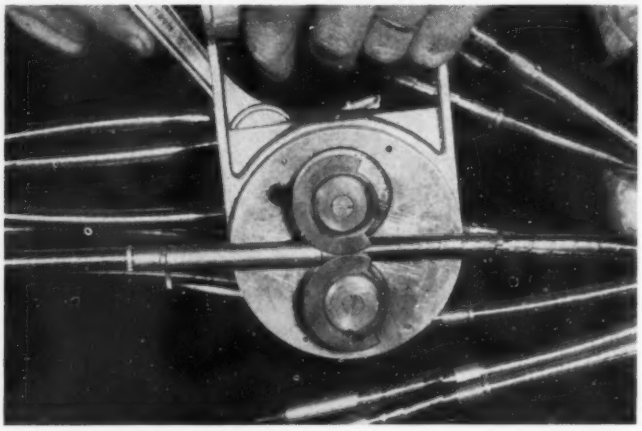


*Fig. 11—The final operation is rolling the entire joint with the special tool shown.*

conductors when the sleeve was placed in its final position.

### Effect on Transmission

JOINTS made by the present method develop substantially the full tensile strength of the component conductors. Their effect on transmission is to increase the capacitance of the splice about 1.4 mmf over that of an equivalent length of unspliced conductor. At the top frequency of the present L1 carrier system, this impedance irregularity is of the same order of magnitude as that attributable to the differences between adjacent splicing sections of the cable itself. The dielectric strength of a coaxial splice structure is about 5,000 volts peak, the corona threshold being 500 to 800 volts lower. These voltages are well above the present maximum power transmission voltage.

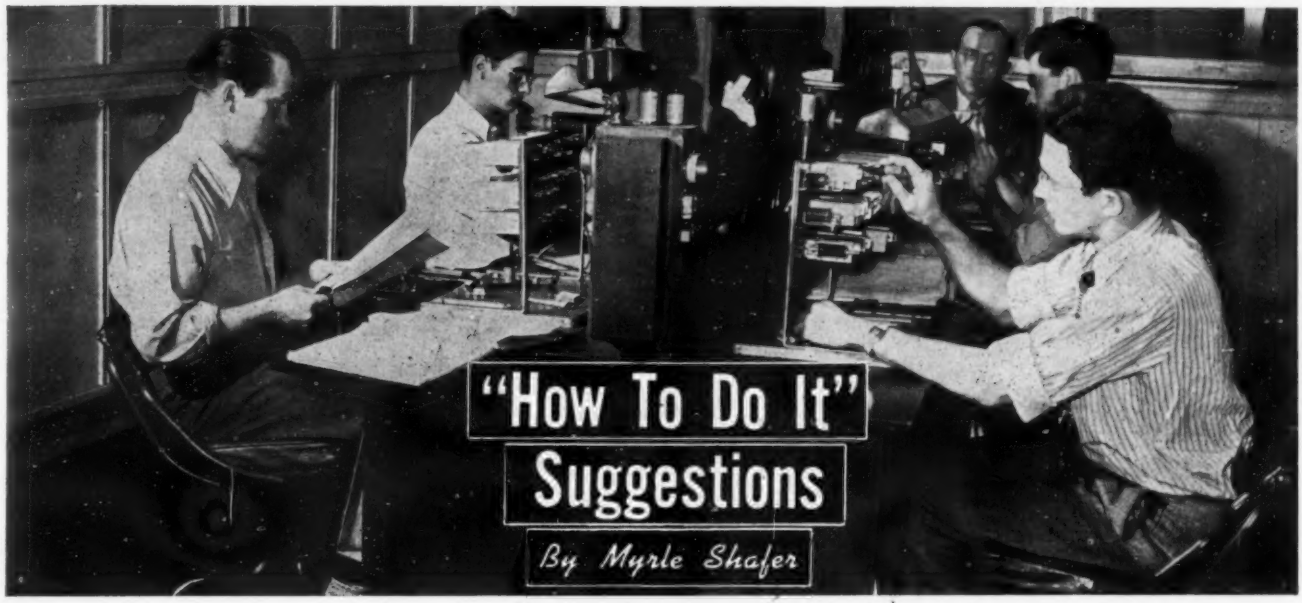
In addition to the tools described above for joining two coaxials, coaxial sleeve cutters and a nip cutter are used in the process of opening a coaxial for repair or maintenance operations.

The 0.270-inch coaxial with polyethylene insulation and longitudinal seam, which was the predecessor of the 0.375-inch unit, was spliced by a rolled and pressed joint method, identical except for minor dimensional differences, and the use of tools designed for the smaller size.

The hard rubber insulating discs originally used in 0.270-inch coaxials were able to withstand the elevated temperatures of soldering. Since soldering is a familiar operation to cable splicers, a soldering procedure was the basis of the first approach to the problem of designing practicable means of joining coaxials. This method was used for the installation of all of the approximately 500 miles of cable put into the telephone plant between 1936 and 1942. A small split sleeve of standard type joined the ends of the inner conductors and a split tinned copper sleeve was folded around the ends of the outer conductors. The soldering operation, in general, made a very satisfactory joint, although there were occasional cases of electrical trouble that was caused by overheating the hard rubber discs.

In looking back at the transition from hard rubber to polyethylene insulators, it might seem that the logical way of adapting the soldering technique to polyethylene-insulated cable would be to push back the polyethylene discs for a sufficient distance to get them out of the heated zone, and then to substitute hard rubber discs capable of withstanding the heat. This easy solution was impracticable, however, because of the unacceptably high capacitance change resulting from the addition of more discs.

The L3 carrier system, with its extended frequency band, imposes much more severe requirements as to tolerable splice impedance irregularities, minimum dielectric strength, and minimum corona threshold. Development is now actively under way on a splicing method that employs radically different means of joining coaxials, with the object of simplifying the manual operations performed by the splicer. *(Reprinted from the Bell Laboratories Record.)*



# "How To Do It" Suggestions

By Myrle Shafer

### "I've Never Had an Accident!" Tops Among Famous Last Words

THERE'S ONE thing about most Americans that is as predictable as Christmas or next Tuesday. And that's the reply you'll receive when you ask one how well he can handle an automobile.

"Been driving for 25 years . . . never even scratched a fender!" is one answer you'll receive as regularly as a clock ticks. "Handle a car . . . ha! . . . you should see me take those curves on the highway . . . why those other fellows eat my dust!" That's one that often rears it head when two drivers get together over their cups in a favorite drinking spot.

Yes—it seems we've reared a generation of frustrated Barney Oldfields. The most harmless-looking, pince-nezed bookkeeper becomes a heavy-footed giant the minute he slides behind the wheel of his slick, shiny fluid drive 1949 automobile. Too bad that in most of these cases experience doesn't count—for then we'd be a nation of no-accident drivers.

Trouble is—more experienced drivers are involved in automobile accidents than are the inexperienced ones. More drivers—with two or three years behind a steering wheel—wind up in smash-ups than do nervous beginners. There's a reason: a deep-seated American complex which demands that we prove we are the *best*. And—behind the wheel of modern, dramatically-designed cars—Mr. Frustrated American gets his chance to show off by going as fast as 100-plus horse power will let him. The tragedy of it all is that we aren't fooling anybody—including ourselves. We might as well admit that we've built cars that are *our masters* and that our *three-fourths of a second average reaction time* (in emergencies) isn't the equal of the power we have under our feet.

The proof of that spills across the nation's highways every day and every hour. It's proof that comes with the crunch of steel and the shattering of glass. It's proof that fills the obit columns, keeps insurance companies worried and provides garage mechanics with a lucrative living. It's also proof that we aren't quite as smart as we think we are—at least when we hit for the highways come spring.

Where's the percentage? If you find it—let us know!

### Trailer For Portable Earth Digger Equipment

PORTABLE diggers are a popular item of equipment with construction crews. They save considerable time and effort in digging pole holes and the drill motor can be used for screwing anchors into the ground. In the case of portable digging tools that use an electric motor with extension cable from a gasoline engine-generator unit, it is convenient to employ a trailer for hauling these items behind the construction or maintenance truck, rather than carry them in the truck itself. There is seldom room for such equipment in the average size truck.

One company makes use of farm trailers to carry their portable digging equipment as illustrated in Figures 1 and 2. The following items are carried on the trailer:

1—Onan 5 K.W. d-c gasoline engine-generator unit.

1—Reversible type d-c (universal) drill motor with offset gear case

1—9" Ka-Mo earth auger

1—12" Ka-Mo earth auger

1—Bipod for supporting coffing hoist used in pulling out earth auger

1—Slip clutch for motor

1—Universal extension rod

1—Attachment for driving screw anchor with drill motor

1—50 ft. extension cord (heavy duty

(*Please turn to page* 50)

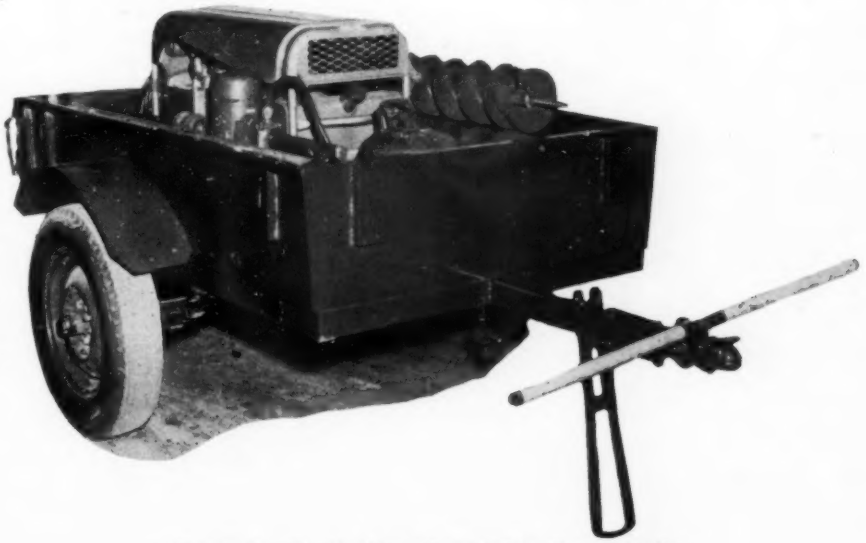


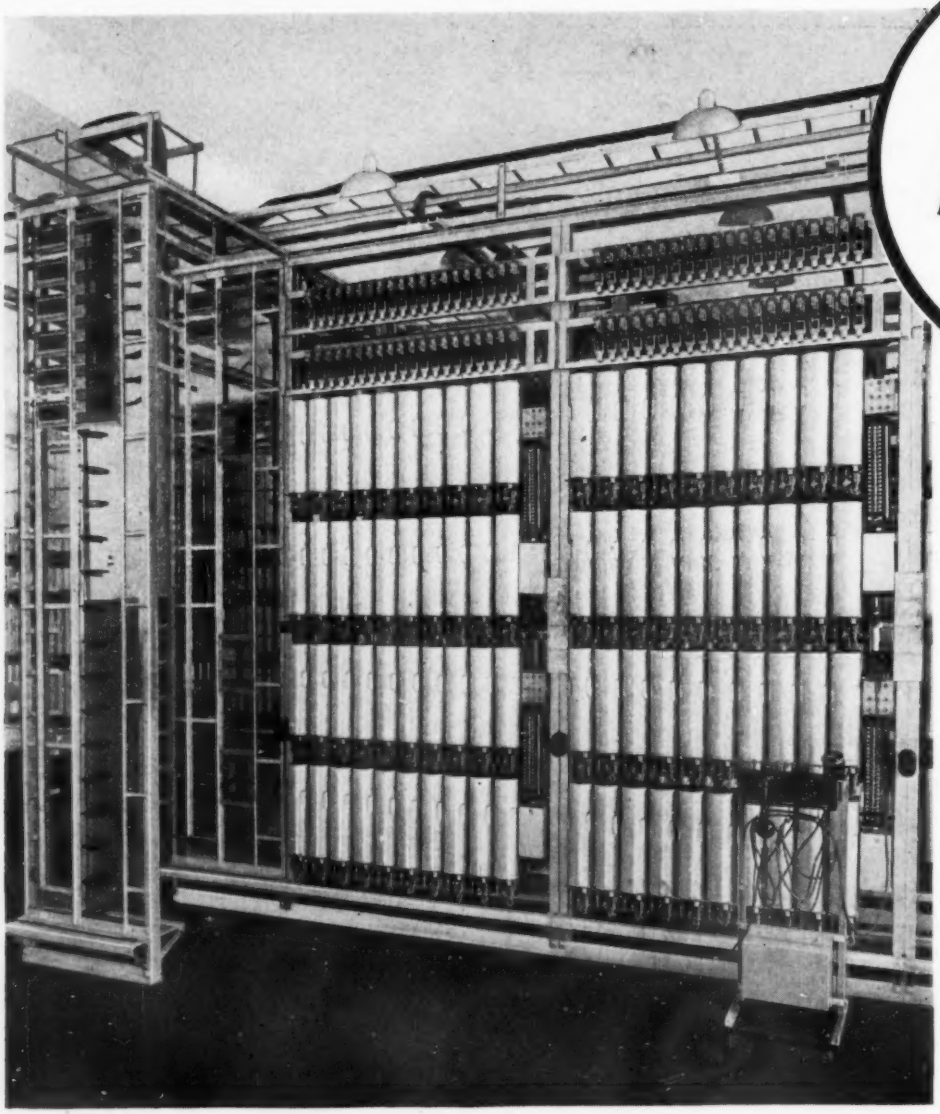
***Figure 1.—Front view of portable digger trailer.***

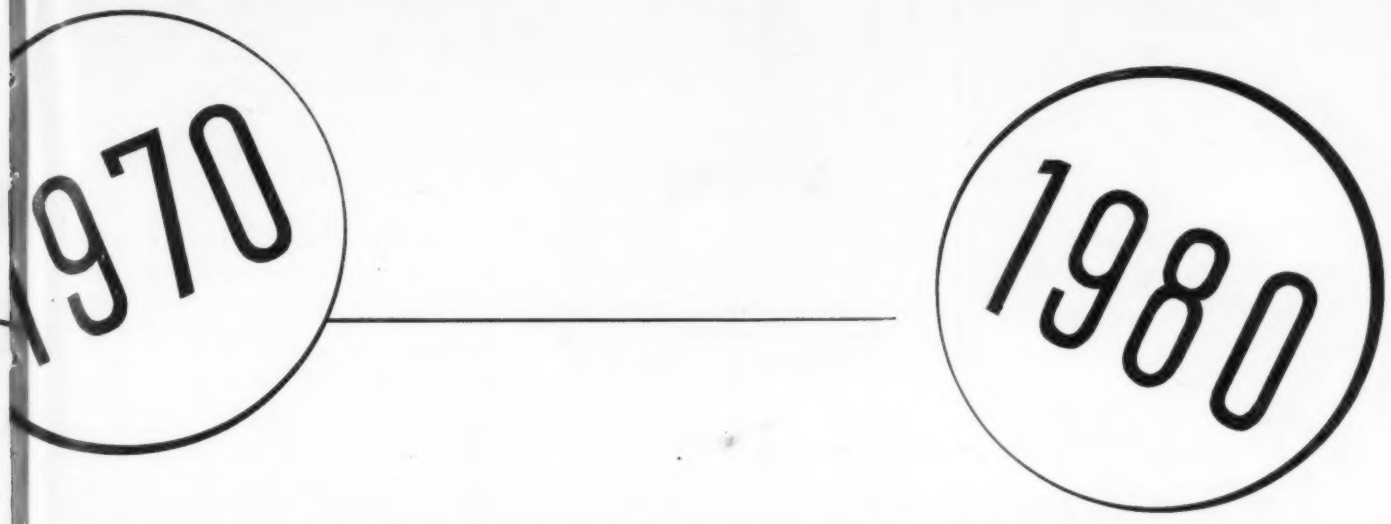
# Before you invest –

## Investigate

## *Strowger Automatic*

1960






# Long Range Utility

## *and then Invest with Safety*

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Strowger Automatic exchanges installed thirty years ago, and more, are still "on the job," rendering their initial superior quality of commercial service. They have grown as the communities they serve have grown, to provide more service, and even new services not contemplated in the original installation. Today the original equipment works side by side with the new—and because of "preventive" maintenance practices pioneered by Automatic Electric, it still needs only a minimum of attention.

What better guarantee could you ask on new exchange equipment? What better assurance that the equipment you choose today will continue to serve through 1960, 1970, 1980—and even beyond? Invest in Strowger Automatic's long-range utility, and you invest with safety.

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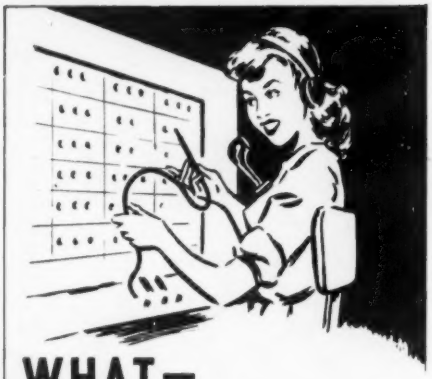

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Nylon thread used for the covering of these cords provides a superior tough outer braid capable of hard service.

2 **DURABLE**

Switchboard cords are subject to severe wear. Nylon covering gives long and exceptionally satisfactory service under hard usage.

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Chemists recognize Nylon as a material highly resistant to moisture and acids.

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Where mildew is likely to occur these Nylon cords are immune to its destructive action.

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6 **BEAUTIFUL**

The very name Nylon suggests beauty, quality and refinement. These cords live up to the name in every respect.

ASK FOR

Runzel V.N. SERIES Nylon SWITCHBOARD CORDS

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CHICAGO 41, ILL.

***Figure 2.—Top view of trailer, showing how the various items are arranged.***

type with large gauge conductors)

1—5-gallon gasoline can

1—5-pound can grease

1—Grease gun

Extra parts for earth augers (taper pins, blades, and lead screws).

The gasoline engine-generator unit is bolted to the bed of the trailer. The earth augers and motor drill are supported on metal brackets in the trailer. The bipod is strapped to the same brackets that support the motor drill. The various parts and attachments are kept in a box built into the trailer.

The trailer is a standard 1500-pound unit weighing about 500 pounds and designed to carry 500 pounds payload. The tongue is equipped with a strap iron leg that can be folded out of the way and held in place by a chain at the front end of the trailer box. A Brice automatic coupler replaces the original coupler unit to fit the standard drawbar on the truck.

When it is necessary to haul the trailer by manpower in locations inaccessible to the truck, a 36″ x 1″ pipe handle with hook (Figure 2) is used to enable two men to pull the trailer.

The bipod is employed for pulling the earth auger out of the ground. This device consists of two 1″ dia. pipe legs with angle iron feet and joined at the top to a short crosspiece carrying a heavy hook for supporting a coffing hoist. This hoist is used for lifting out the auger.

When the trailer is hauled to and from the job location or stored temporarily, the equipment is protected by means of a tarpaulin as shown in Figure 3.

### *Spiral Plastic Strips Used to Protect Drop Wire*

A VERY COMMON type of drop wire trouble that has plagued telephone men for years is the abrasion of drops on trees or other obstructions. The usual method of preventing this trouble is to properly route the drops to avoid contact with obstructions or by using suitable guards to protect the drops.

The recently developed Tenite plastic strips provide a very simple and practical means of protecting drop wire from abrasions. No special tools are required for installing the strips and one man can easily do this work. To install, the ends of the two spirally interlocking Tenite strips are applied around the wire and then the two lengths are spiraled together.

In place, the strips form a tubular sleeve, which is flexible and light weight and provides excellent protection against abrasion. Tenite is stated to have an excellent weathering ability and impact resistance.

### *Light Pole Trailer Derived From Trailer Axle Assembly*

FOR HAULING several poles for replacing decayed or broken poles in a light rural lead or for building

(*Please turn to page* 52)

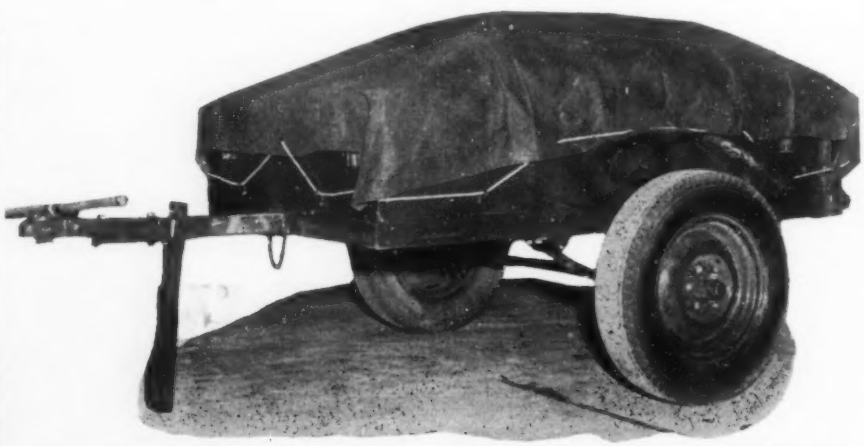

***Figure 3.—Trailer covered with tarpaulin to protect equipment during transportation.***

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**Koiled Kords available trimmed to fit all standard desk sets. Specify type when ordering through your Independent Telephone Supplier**

**Koiled Kords**
INCORPORATED
**BOX K,**
**HAMDEN, CONNECTICUT**

***Figure 4—Front view of light pole trailer using a standard automobile trailer axle assembly.***

short rural line extensions, a light pole trailer is advantageous. Such a one can be made from a straight axle assembly commonly used for constructing automobile trailers.

Figures 4 and 5 illustrate the construction of the trailer. A 10'6" x 2¼" dia. pipe is used for the main part of the trailer tongue with a 24-inch length of 2-inch dia. pipe inserted in the front end of the tongue and welded thereon for a Brice automatic coupler.

The rear saddle is 36" long and is made from 5" x 1¾" channel iron with sides 6" high. The front saddle is of the same dimensions but is made from 3" x 1½" channel iron. The 2-inch dia. pipe standards supporting the rear saddle on the axle are of the proper length to keep the poles on the approximate level when the trailer is hitched to an average size truck. The two side braces supporting the tongue are made from 1½-inch dia. pipe. All parts are welded for maximum strength and rigidity.

### *Foiling the Lantern Thieves*

NO DOUBT many companies that perform underground construction activities have many lanterns stolen or broken. We have had our share of this trouble and have devised our own method of protecting our lanterns.

First a wooden mold is made about ½ in. all around larger that the base of the lanterns; the mold is from three to five inches deep depending upon the length of the lantern base. The lantern is then set in the mold, and the mold up to the oil hole is filled with a rich mix of concrete. After the concrete sets the base may be removed if desired. The lantern is then too heavy to be easily carried, thus eliminating the stealing.

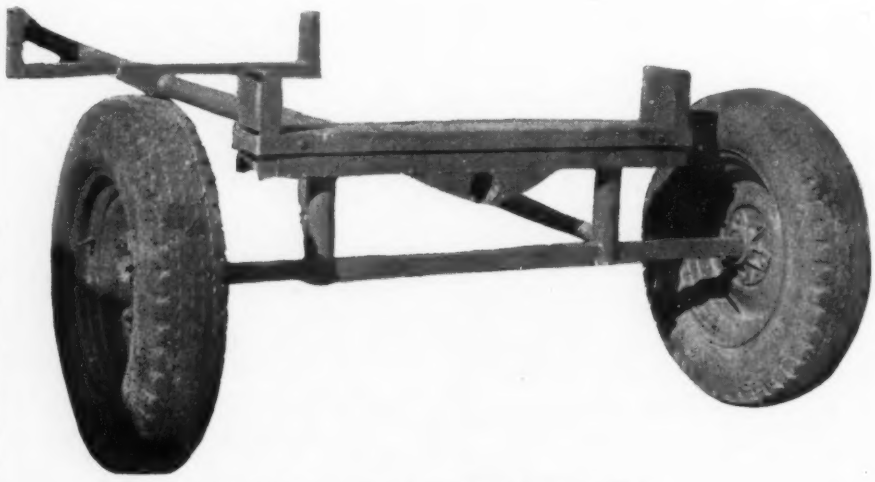


***Figure 5—Rear view of light pole trailer.***

*Photographer MORRIS S. BURTON, assistant general manager Gulf States Telephone Co., Tyler, photographed this group at recent Texas convention. Left to Right: JACK HALEY, executive secretary Texas Telephone Association; JUDGE SLATON, general attorney of the Southwestern Bell, Dallas; SAM H. SHUTT; OSCAR BURTON; ROY SMITH, vice president of Telephone Engineer Publications, Chicago; R. H. BURFEIND of Automatic Electric Sales Co., Chicago; H. W. HUBENTHAL, secretary of the Oklahoma Association, and F. S. BARNES, president of the United States Independent Telephone Association.*

# Texas Independents Hold Annual Meeting

## *D. T. Strickland Elected President*

D. T. STRICKLKAND, vice president and general manager of the Southwestern States Telephone Co., Brownwood, Tex., was elected president of the Texas Telephone Association at its 44th annual convention at Dallas Mar. 21-23. The annual meeting had the largest attendance in the history of the state's Independent telephone organization, with a total of 450 registrations.

Don Hunsaker, president of the San Angelo (Tex.) Telephone Co., was chosen first vice president of the association, while Jean Shotwell, general manager of the Lufkin Telephone Co., was elected second vice president. J. B. Haley, was reelected executive secretary.

Frank S. Barnes, president of the U. S. Independent Telephone Association, was the principal speaker of the convention, while other principal addresses given during the three-day session were by Executive Vice President H. C. McCluskey of the Kellogg Switchboard & Supply Co., Gary Group Personnel Director George E. Brewer, Harold R. Hunkins of the Southern Electric & Transmission Co., Dallas; Lt. Col. Leslie Conner, attorney for the Oklahoma Telephone Association, Oklahoma City; Irvin Mattick, Southwestern Bell Telephone Co., St. Louis, Mo., and P. P. Stathas, senior partner, Duff & Phelps, Chicago. Heading the different conferences were Ray Reed, of Southwestern Associated Telephone Corp., for commercial, R. W. Wopat of the Texas Telephone Co., for plant, and N. T. Dunlap of Southwestern Bell Telephone Company, Dallas, traffic. Speakers at the Traffic Conference were: John E. Robbins, Jr., of San Angelo; Pearl Griffis, Sherman and Mr. Dunlap.

The Texas Chapter of the Independent Telephone Pioneers met on March 25. Officers elected were: A. L. Robb, president, and D. E. Van Ness of the Southwestern Associated Telephone Co., Dallas, secretary-treasurer.

Directors reelected for three-year terms are: Fabian Bearden of the Home Telephone & Electric Co.,

*Texas Association board of directors. Left to Right, Seated: D. T. STRICKLAND (president for 1949); JACK HALEY, SAM SHUTT, F. S. BARNES and A. L. ROBB. Left to Right, Standing: R. B. FAIRLY, OSCAR BURTON, W. L. PREHN, DON HUNSAKER (succeeding J. Y. Rust on board), ROY AUTRY (succeeding R. B. Fairly on board), JEAN SHOTWELL (reelected treasurer), H. T. SHIPMAN, W. G. WINTERS, T. A. SINGER, J. T. CHAMBERS, and CHARLES HENDRIX.*

Baird; A. L. Robb of the Electra (Tex.) Telephone Co.; T. A. Singer of the West Texas Telephone Co., Dimmitt; Ralph Sparks of the Pecos & N. Western Telephone Co., Pecos; Mr. Strickland; S. D. Teas of the Floresville (Tex.) Telephone Co. New directors are: Roy Autry, Dallas; Don Hunsaker, San Angelo; W. P. Donaldson, San Marcos. Mr. Autry was elected to succeed R. B. Fairly who recently retired as president of the Southwestern Associated Telephone Co. Mr. Hunsaker and Mr. Donaldson succeeded John Y. Rust and L. Rust who were elected honorary members of the association in recognizance of their many long and faithful years of service.

The convention program started on Monday afternoon, March 21, with Mr. Strickland presiding. Following the invocation delivered by Reverend Marshall T. Steel, pastor of the Highland Park Methodist Church, Dallas, a welcoming address by Honorable Jimmie Temple, mayor of Dallas, and the response by Oscar Burton, vice president of the Gulf States Telephone Co., Tyler, Mr. Hunkins, discussed "Carrier as Applied To Rural."

Mr. Hunkins stated that in the recent committee hearings, representatives of the Bell System and the U. S. Independent Telephone Association joined hands in insisting that the rural telephone situation is "being given plenty of consideration by the existing operating companies, to the end that service is now available to 80 or 85 percent of all potential rural customers."

The problem, he said, now is for the Independent operating companies, in particular, to consider what is required to make service available to the other 15 or 20 percent beyond the present range of their plant.

"Part of this problem lies in the limitations of existing switchboards to terminate new lines. The rest of the problem lies in connecting facilities. As a rule, the potential customers in this category will be located beyond the fringe of the present rural plant. Existing wires may already be serving their full complement of party-line subscribers. What is needed to extend the service is a greater number of circuits between the central office and the fringe, to feed the new subscribers into the switchboard. One way to get them in is to string new wires over existing pole lines. . . ."

Mr. Hunkins pointed out that there are three methods for connecting new customers without stringing additional wires in the present service area. These are radio, power line carrier and telephone line carrier.

He stated that equipment is now available on the market which will provide direct radio service from a remote rural subscriber to the central office or to the nearest cable terminal. "This equipment," he said,

*Shot in Stromberg-Carlson's room. Left to Right: Unidentified, MR. SEEKATZ, Medina Telephone Co.; JACK SIMMS, Southwestern Associated Telephone Co., Dallas, and BILL LYONS, sales representative for Stromberg in West Texas, located at Brownwood.*

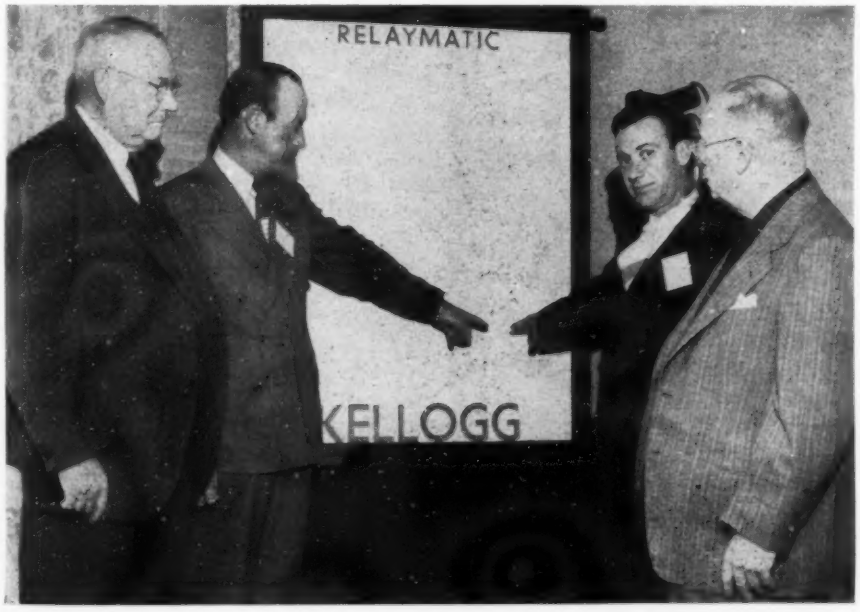
"is relatively expensive to install and maintain and is economical only for the special customer, like the large ranch owner or oil operator who can afford the freight. Furthermore, radio frequency allocations for this type of service are limited and in great demand for other services. Hence, the wide-spread use of radio for rural service is not anticipated. . . ."

Mr. Hunkins stated that power line carrier equipment is also available on the market, but, as the name implies, the wires to be employed are power lines, not primarily owned or controlled by a telephone company. "It is true," he said, "that agreements have been reached between telephone companies and the REA, for instance, for joint use of the Administration's poles and distribution systems for telephone service, but, as Col. Henry pointed out to the House committee, there is a superficial relation of telephone service to power supply, but the similarity stops with the fact that they both use wire and poles. Whereas the number of farms with telephones already exceeds those with electric service, it is probable that joint operation is not going to provide access to all potential rural telephone subscribers which you may wish, or be required, to serve."

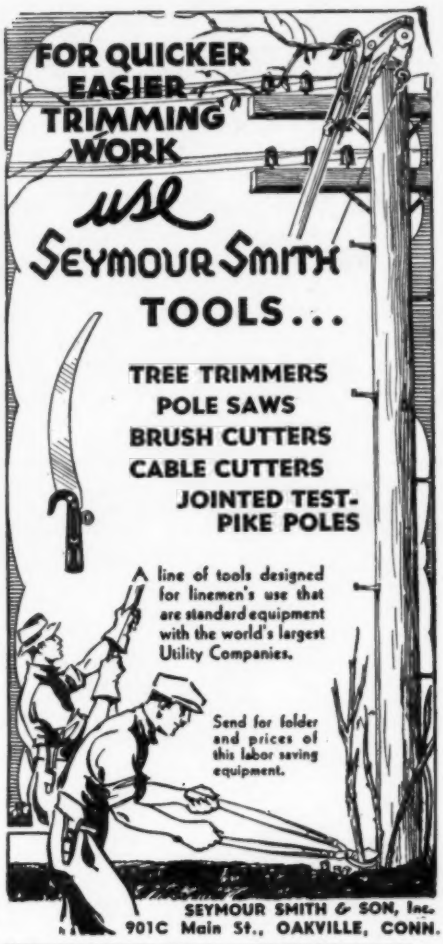
The third method of providing increased service, commented Mr. Hunkins, is by furnishing the necessary connecting circuits by using conventional carrier telephone systems operating over existing leads.

*T. C. THOMPSON, Rochester, lighting the Missouri Meerschaums provided by Telephone Engineer. Left to right, MISS DORIS HAMM, Consolidated Directory Corporation, Ft. Worth; Thompson, and MISS WILMA RUTHERFORD, also of Consolidated of Ft. Worth.*

"For example," he said, "you have a given line servicing its maximum number of rural subscribers. You would like to be able to extend this line and add more subscribers. My proposal is this; that you build the extension line out from the present boundary and connect the near end to a carrier telephone channel which operates from the boundary back to




*Shot in Kellogg's Room at the map of the Relaymatic Installations in Western United States. Two in center are pointing to location of Cottonport, Louisiana—their home. Left to Right: H. C. McCLUSKEY, executive vice president, Kellogg; BASCOM CALLEGARI, Cottonport, La.; W. J. CAMP, JR., Cottonport, La., and BOB MILES, of Kellogg's Kansas City office.*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the central office. By this means, you have avoided stringing a new pair all the way back and the carrier channel is riding over the original rural circuit, whose effective length and revenue you have thus substantially doubled."

The final feature at the Monday afternoon session was Mr. McCluskey's discussion of "Manufacturers' Problems and Price Trends."

Mr. Barnes appeared as the first speaker at the Tuesday morning session and discussed the Poage Bill and the Hill Bill. Mr. Barnes stated that the telephone industry can adequately serve the needs of the people. He stated that manufacturers are still six months to two years behind with orders for switchboards and other equipment and commented that "no matter how much money could be made immediately available, service or equipment can be available no faster than the manufacturers can make it available."

Lt. Col. Conners, during his discussion of "Service and Rates" stated, "in your exchange you must depend upon rates . . . just rates . . . for your entire revenue."

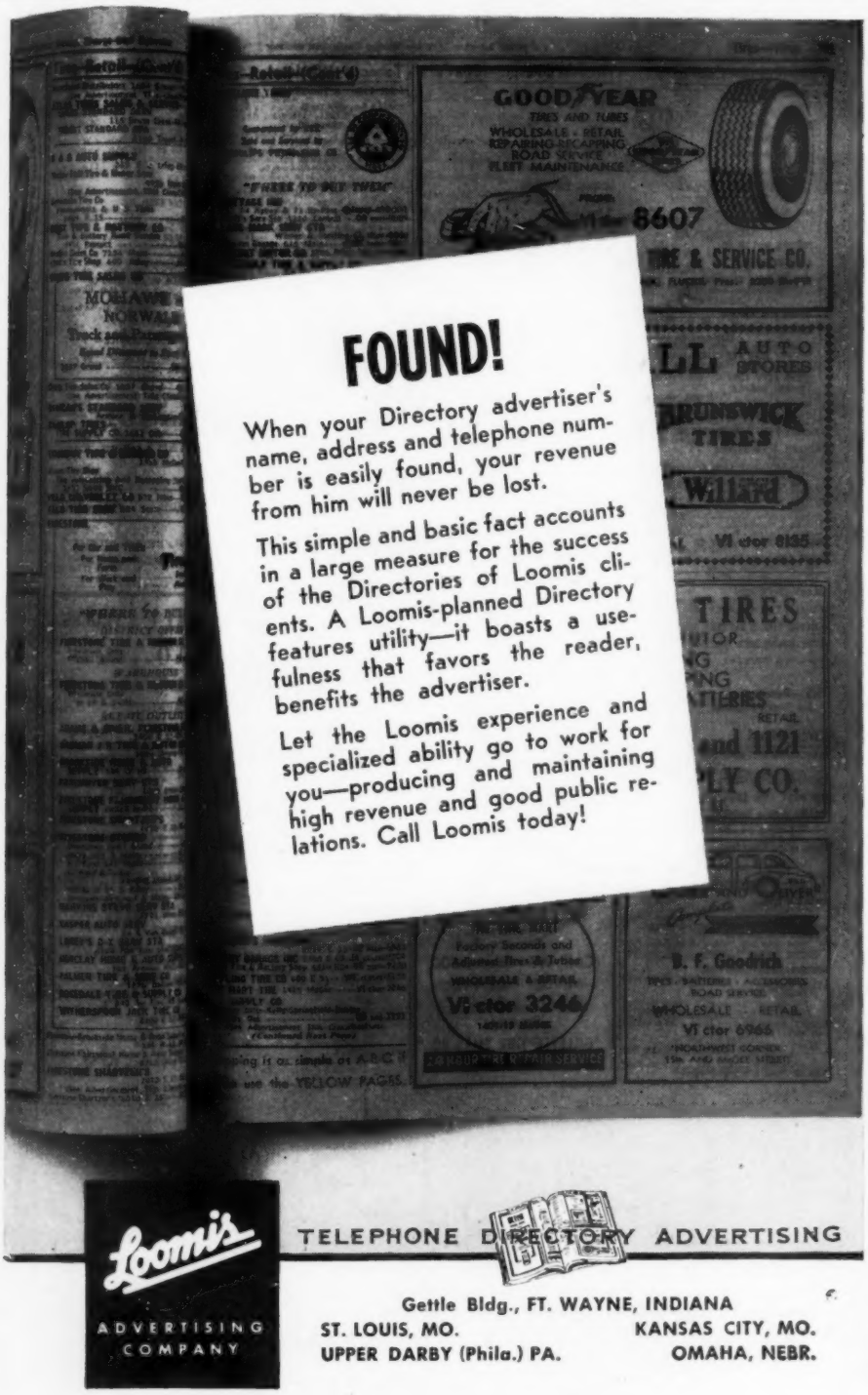
"It is," he said, "not like the large company who sells wire service, directory advertisement and other forms of income, your rate making is a simple matter. There are three basic ingredients. A. Investment. B. Expenses. C. Revenue. At the end of the year you subtract your expenses from your revenue and what is left is the interest on the investment and depreciation fund. Those three things taken from your books will make a rate case.

"There are many acceptable ways to arrive at the value of your exchange. In Oklahoma we use the reproduction cost new method, and whatever condition it is in, if it is in 70% or 80% or 90%, we take that figure of the reproduction cost new now and arrive at that figure upon which we are entitled to 4% depreciation per year. We take the present fair value of the exchange and use 6% of that for our interest on our investment. . . ."

The final convention speaker, Mr. Stathas, discussed "Current Views on Financing Problems of Independents." He commented that in spite of the large amounts spent by Independent telephone companies in connection with their postwar expansion and conversion programs, there are today a relatively large number of companies still faced with construction requirements that cannot be financed entirely out of present working capital, retained earnings and depreciation accruals.

"Financing," he said, "by Independents under today's conditions often presents a number of problems, some of which are not too easily overcome. Certain of the problems faced by Independents in obtaining new capital have arisen as a result of the extremely large amount of new securities offered by electric and gas utilities and by the Bell System since the termination of the war. Other problems result from the generally adverse earnings record of the telephone industry in recent periods, particularly in comparison with the trend of earnings for the electric and gas utilities. . . ."

Mr. Stahas stated that there is no fixed formula for determining the amount and type of each class of securities which should be sold to provide expansion funds. He warned that in any type of debt financing, "the Independent should guard against incurring combined debt repayment and interest charges beyond the earning power capacity of the new facilities which such financing will build." —THE END.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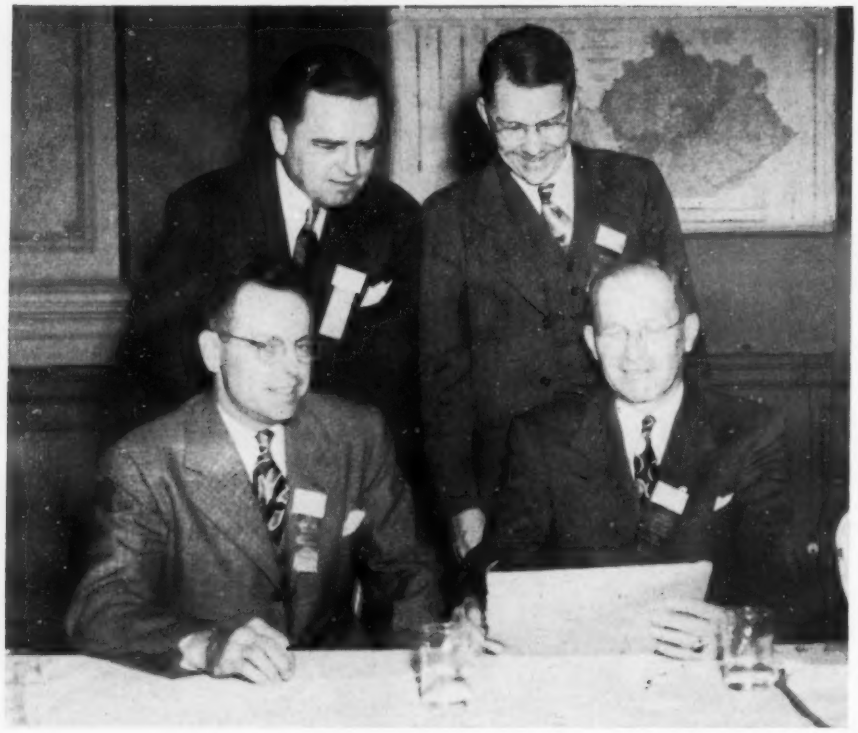

*TE&M camera photographed this group of Kentucky conventioners. Seated (l. to r.): R. A. MAYBURY, Lexington, and L. O. EVENSON, Lexington. Standing (l. to r.) CLAUDE B. YATES, Louisville and EARLE BLOMEYER, Elizabethton.*

# L. O. EVENSON Reelected President of Kentucky Telephone Association

MEETING at the Phoenix Hotel, Lexington on March 15, the Kentucky Independent Telephone Association reelected L. O. Evenson, of the Lexington Telephone Co. as president. Other officers reelected were: Burt Ruffner, Lexington, vice president, and R. A. Maybury, Lexington, secretary-treasurer. Earle Blomeyer of the Southern Continental Telephone Co., Elizabethton, and G. B. Foscue, Jr., of the Consolidated Telephone Co., Florence, were elected vice presidents.

Directors reelected are: Louis Cox, Frankfort; Mr. Evenson, Mr. Maybury, H. S. Poage, Mr. Ruffner, R. P. Sullivan, Lexington, and W. R. Bacon, Glasgow. Mr. Blomeyer and Mr. Foscue were elected to the board.

Speakers featured at the one-day meeting were: Mr. Evenson, Mr. Maybury, Mr. Blomeyer, Claude B. Yates, Kentucky Manager of the Southern Bell Telephone & Telegraph Co., Louisville; Judge Robert M. Coleman, chairman of the Public Service Commission of Kentucky, Louisville; Ray W. Smith, editor of Telephone Engineer Publications, and Dr. V. E. Nelson, of the University of Kentucky.

During his report, President Evenson stated that 1948 posed many serious problems. These problems were of two kinds; namely, (1) Day to day problems encountered in supplying the telephone needs of the subscribers and applicants for service in the various communities in which we operate; and (2) problems created by Federal laws and regulations.

"Quite often," he said, "our day to day operations so completely absorb our time and thoughts that we may lose track of the problems which are being created for us through last year's Hill Bill, and bills to increase the minimum wage.

"Your officers and directors have earnestly and diligently tried to protect your interests in these matters, and they will continue to do so during the year 1949. The year 1949 has all of the appearances of being just as interesting to the telephone industry as the year 1948. We are still faced with serious problems in providing the quality and quantity of telephone service desired by us and requested by the public which we serve. We are not only trying to fulfill this unprecedented demand, but also to improve the quality of the service we are now rendering.

"We are now faced with the Poage Bill, known as H.R. 2960, one of the provisions of which is to provide Government funds at a low interest rate to furnish telephone service in rural areas. We are also faced with House and Senate Bills providing for a revision of the minimum wage. Both of these bills, in their present form, could be of serious consequence to the companies whose properties are composed of small exchanges. . . .

Mr. Evenson said the association will continue to keep members advised in these matters through bulletins, and special bulletins when necessary. "We must depend," he said on you individually to contact your representative in the National Congress for the protection of your interests in legislation which may

(*Please turn to page* 60)

*Federal Telephone and Radio's ROBERT CASS, L. J. DENNEY (left) and RALPH ENGSBERG were entertaining this Lexington couple when our camera paused at their Kentucky exhibit.*

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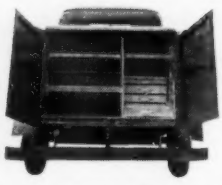
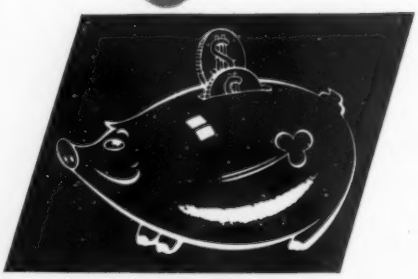


Model 2076

This light service body, designed for installation on a standard half-ton chassis, has convenient compartments for tools and materials. Drawers for small parts have adjustable partitions. Result: More efficient, cost-saving service work for you.



Write for the Model 2076 "facts" today!

YORK-HOOVER BODY DIVISION CORPORATION

YORK, PENNA

adversely affect your business. I am sure we can depend on you to express your thoughts to your legislative representatives. . . ."

Mr. Maybury's report showed that the association has 16 active member companies and 27 associate members. He appealed to all members to help increase the membership. "Our dues," he said, "are one cent per station for active members. It is not the financial gain that we need, but as all of you know with the Legislative measures in Washington, D. C. that are in the various committees we need more influence and contacts with our Senators and Representatives in order to forcefully and effectively state our views on impending legislation. . . ."

During his discussion of "Telephone Service at Present High Cost and Related Problems," Mr. Yates listed the following practical suggestions for helping service and improving revenues:

(1) The sale of extension stations will (1) increase exchange revenues, (2) improve completion, (3) improve customers' service. This can be done best by taking advantage of the opportunities that are available to employes by: (a) Contacts with the customer at the time main service is being installed, moved or rearranged; (b) contacts by our Business Office people, and (c) installer visits to customer's premises.

(2.) The development of Public Pay Station service will (1) increase revenues, (2) reduce the calling rate, (3) reduce busy reports, (4) improve the customer's service.

(3.) The promotion and sale of directory advertising is one good media to bring in additional revenues.

"As all of you know," he said, "we in the telephone business have never enjoyed high profits. So long as we were able to keep our heads above water by keeping our current debts paid, paying the investor a small return and raising the small amount of capital to make needed expansions, we were resourceful enough to find some way to carry on without the necessity of rate increases. There was no necessity for any utility to stress the importance for adequate earnings. There was no necessity for educating our employees, the public, the City, County and State Officials on the necessity for rate increases in the telephone business.

"As all of you realize, we in the telephone business are in a type of business that is not generally understood by the public. In most all

(*Please turn to page 62*)

# ENDUR-PRENE

## means ENDURANCE plus

(left)

Twisted Pair
Drop Wire

(right)

Parallel
Drop Wire

**"EnDURing adhesion EQUAL to the tensile strength of the conductor" is a PROVEN feature of ENDUR-PRENE JACKETED DROP WIRES . . . .**

It's BETTER or comparable in every respect to any other wire on the market today!

### OUTSIDE WIRES

Drop, Bridle and tree—sizes 14 to 22—B&S, bronze, copperweld, copper and iron conductors, rubber insulated, cotton braided.

### INSIDE WIRES

Sizes 19 to 22—B&S with rubber insulation, cotton braided or plastic insulated.

•

Samples of Neoprene drop and bridle wire are available —wire or write today.

- * Greater abrasion resistance
- * Best weathering characteristics in all climates
- * Freedom from fraying and rot
- * Flexibility at all temperatures
- * Very high tensile strength
- * Positive resistance to all chemicals

PLASTIC INSULATION is particularly adapted for inside jumper and duct wires, has bright colors for identification, smaller diameters, is flame and moisture proof, offers high resistance to abrasion and will not support fungus growth.

Distributed by KELLOGG SWITCHBOARD & SUPPLY CO., Chicago 38, Illinois

## GENERAL INSULATED WIRE WORKS, Inc.

TELEPHONE
HOPKINS 2100

69-105 Gordon Avenue • Providence 5, Rhode Island

*JAMES PFAENDER of Stromberg-Carlson Co., Chicago, JOHN CAMPBELL of Kellogg, H. T. McCAIG of Lorain Products and R. GAMBRELL, Atlanta, at Kentucky convention.*

other types of business the cost does not increase proportionately with the increase in volume, therefore, most people outside the telephone business feel that as we add stations, experience an increase in toll, our cost does not increase proportionately. It is not necessary to tell you, however, that the investment per telephone and the increase in expenses in the telephone business increase much more rapidly as the volume increases. The important point, therefore, is that the public, the City, County and State Officials do not generally understand the adverse economic principle that is involved in the operations of the telephone business. Realizing these facts, I feel that we all have a very important job to do. It is a combined public relation, employee relation and political relation job. Expressing it another way, we must get the facts about the business over to our employees and to the public.

The final speakers at the Monday afternoon session were Mr. Smith and Dr. Nelson. Mr. Smith discussed "Good Service—Good Plants —Good Rates." Dr. Nelson described the mineral resources of Kentucky. —THE END.

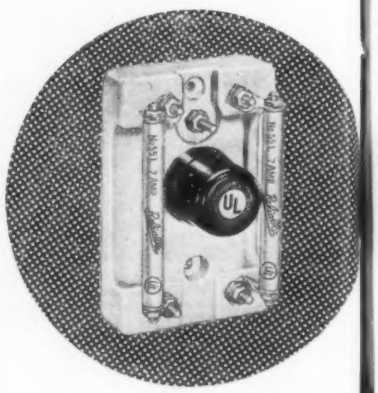
*Among Kentucky conventioners were (l. to r.): DE WITT GIBSON, Leich Sales Co., Chicago; HUGH B. BEARDEN, Utilities consultant, Lexington and LOUIS SHEPHERD, H. E. HUSSEY, and HARRY HUETHER, all of Lexington.*



STROM

*individual station protector*

reliable 955



MFD. BY RELIABLE ELECTRIC COMPA

- One-piece Design
- Simplified Mounting
- Asbestos Mats Eliminated

The very simplicity of the Reliab 955 is assurance of long, troub free service. Fuses are mount on a one-piece, low absorpti porcelain, well spaced for co venient connecting. Reliable Se cleaning Sawtooth Dischar Blocks are standard, dissipati static without time lag or dang of grounding the line. The 9 uses No. 55L, seven ampe ceramic fuses.

*"Reliable Identifies the Quality"*

STROMBER

STROMBERG Telephone CARLSON

TELEPHONES, SWITCHBOARDS • SO

# STROMBERG-CARLSON recommends...

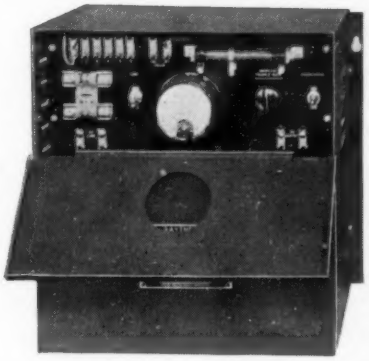
*... dependable battery charging with the*

## raytheon recticharger*!

A small storage battery floated across the terminals of a Raytheon Recticharger provides closely stabilized DC voltage . . . longer battery life . . . and improved operation of manual or automatic telephone systems.

These are *proven* advantages that stem from exclusive design and long service to the telephone industry.

When replacing, expanding, or modernizing switchboard equipment, utilize Raytheon's extensive field experience and complete line. Available from 1.0 to 24.0 amperes with either 24 or 48 volt output.



*Reg. U. S. Pat. Off.

*for better offset dead ends specify*

## nicopress!

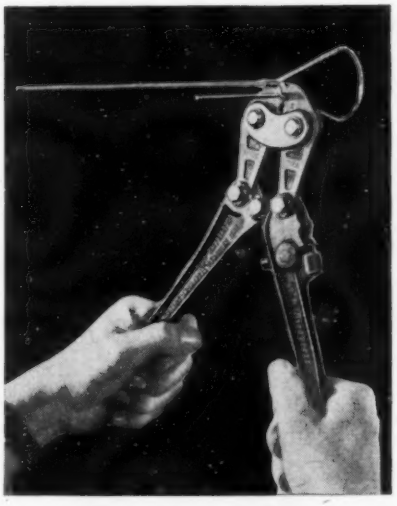
You can't buy better Dead Ends than *Nicopress!*

Designed for use with either copper, Copperweld, or iron wire, *Nicopress* Dead Ends star in strength and tightness.

Installing these Dead Ends is simplicity itself. You need no extra tools—the same tool used in making regular line splices will make the offset dead end as well.

*Nicopress* Dead Ends make possible a tail of any desired length.

These Nicopress tools are small and compact—can be operated with no trouble at all close to insulators or cross arms.



**outstanding for**

- **ductility**
- **tensile strength**
- **torsion**
- **galvanizing**

## crapo *galvanized steel* cable lashing wire

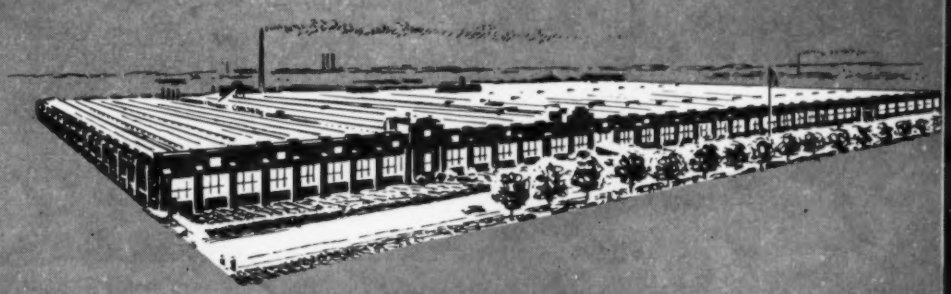
Developed to provide a superior, dependable lashing wire for use wherever cable suspension is done by "spinning." Made of selected steel with extra-heavy zinc coating. Diameter .091 inch. Put up in compact, thread-lay coils for ease in handling (see picture). Another fine product of Indiana Steel & Wire Co.

**. . . also in stainless steel**

Crapo Lashing Wire is also available in Stainless Steel, in diameters of .065 and .045 inch.

## STROMBERG-CARLSON

Factory, General Offices: Rochester 3, N.Y.
Branch Offices: Atlanta 3, Chicago 6, Kansas City 8, San Francisco 3. In Canada: Stromberg-Carlson Co. Ltd., Toronto



# *Current* COURT and COMMISSION *Activities*

## Alabama Commission Approves Increase for Nauvoo

R. A. Howell, d/b/a Howell Telephone Co., Nauvoo, Ala., has received authority to put in force a schedule of rates which will increase charges for all classes of local service, except 4-party residence. A comparison of the basic urban and rural rates, present and approved is as follows:

| Class of Service Urban | Present | Approved |
|---|---|---|
| 1-party Business | $2.00 | $3.00 |
| 2-party Business | 2.00 | 2.50 |
| 4-party Business | 2.00 | 2.25 |
| 1-party Residence | 1.75 | 2.25 |
| 2-party Residence | 1.75 | 2.00 |
| 4-party Residence | 1.75 | 1.75 |

**Rural Multi-Party Lines**

Not more than 10 subscribers on any one line:

| Flat rate for each subscriber | | |
|---|---|---|
| Business | None | $2.25 |
| Residence | None | 2.00 |

## Rate Increase Approved For Lodi, Wis.

The Lodi (Wis.) Telephone Co. was recently granted rate increases estimated to yield $5,145 a year in new revenue by the Wisconsin Public Service Commission.

The increase will give the company a return of about 6 per cent on its investment, the commission said. It is now operating at a loss, according to figures given the commission.

## New Rates Approved For Foley, Ala.

The Gulf Service Co. has received authority from the Alabama Public Service Commission to charge the following rates for common battery selective ringing service to Foley exchange subscribers effective for bills dated April 1, 1949, provided that (1) existing Foley exchange subscribers of magneto service may, at their option, continue to receive such service at present effective rates, and (2) existing Foley exchange common battery subscribers shall be continued at present effective rates for such service until they are provided with selective ringing:

(A) **Urban Service (Within Base Rate Area)**

| | Common Battery Selective Ringing Service (Per Month) |
|---|---|
| Business 1-party | $4.25 |
| Business 2-party | 3.50 |
| Residence 1-party | 2.75 |
| Residence 2-party | 2.50 |
| Residence 4-party | 2.25 |

*Base Rate Area—Foley City Limits*

(B) **Rural Service—Outside Base Rate Area**

| | |
|---|---|
| Rural Multi-party Residence | 2.25 |
| Rural Multi-party Business | 3.25 |

*The above rural service rates apply for first four miles, airline measurement, beyond base rate area boundary. Add* $1.00 *for each additional four miles that line is extended beyond base rate area boundary.*

## Georgia Commission Approves Fairmount Rate Increase

The Fairmount (Ga.) Telephone Co., has received authority to increase rates for exchange telephone service in Fairmount. The present and approved rates are as follows:

| Class of Service | Monthly Rates Present | Approved |
|---|---|---|
| Business | $2.50 | $3.25 |
| Residence | 1.50 | 2.25 |

H. D. Lacey, owner of the company, being unable to attend the hearing in person, submitted an affidavit indicating operating revenues of $3,754.36 and operating expenses of $3,203.10 or a net income for the year 1948 of $201.26, and a plant value of $7,000.

The schedule of revised rates applied to the number of stations as of December 31, 1948 results in an annual increase in revenue of $594.00 which, together with the present net income og $201.26 indicates a pro forma net income of $795.26 per annum.

## Rate Increase Approved For Ringgold Telephone Co.

The Georgia Public Service Commission has approved application of Annie Evitt and J. E. Evitt, owners of the Ringgold Telephone Co., for authority to increase rates for exchange telephone service in Ringgold, Georgia.

The company's application for increased rates stated that its rates are the lowest in the state and that considerable sums have been spent on new equipment and that operating expenses have materially increased, principally due to salary increase.

The present and approved rates are as follows:

| Class of Service | | Rates per Month Present | Approved |
|---|---|---|---|
| Business | 1-Party | $2.00 | $3.25 |
| " | 2-Party | 1.50 | 2.75 |
| " | 4-Party | 1.50 | 2.75 |
| Residence | 1-Party | $1.50 | $2.50 |
| " | 2-Party | 1.50 | 2.00 |
| " | 4-Party | 1.50 | 1.50 |
| **Rural, Business and Residence** | | | |
| 0-2 | Miles | $1.50 | $2.00 |
| 2-4 | " | 1.50 | 2.25 |
| 4-7 | " | 1.50 | 2.50 |

J. E. Evitt testified that the gross investment in telephone plant amounted to $43,800, materials and supplies $400 and that acrued depreciation amounted to $6,570 resulting in a net investment in telephone plant of $37,630. He also testified that total revenues for the year ending December 31, 1948 were

$10,669.03 and that operating expenses were $10,237.70, giving a net income for the year of $431.33. No salary for the owners of the company are included in the operating expenses set forth by the company witness. Mr. Evitt further testified that salary increases for operations and maintenance employees which became effective January 1, 1949 would amount to $600 annually, which would indicate a pro forma deficit of $168.67.

Applying the increases requested by the company to the stations in service as of December 31, 1948, would result in an annual increase in revenue of $3,282 which, together with the indicated deficit of $168.67 shown above, would indicate a net income of $3,113.33.

## Temporary Rate Increase Granted Mt. Vernon, Mo., Exchange

The Missouri Public Service Commission has granted a temporary telephone rate increase at Mount Vernon, Mo., to boost annual revenues of Western Light & Telephone Co. an estimated $3,377 a year.

The increase applies only to rates within the city and will be in force only until the Missouri utility regulating body completes a study of the company's plant valuation. Rates of rural line subscribers of the Mount Vernon exchange will not be increased until equipment serving them is improved.

## Trussville, Ala., Rates Revised by Commission

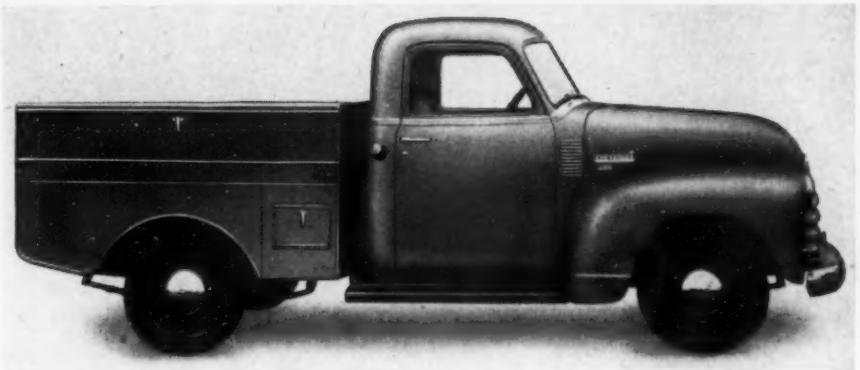
The Trussville (Ala.) Telephone Co. has received commission authority to charge the following rates for common battery selective ringing service, effective when such system is installed and placed in operation:

(1) **Urban service (Within Base Rate Area)**

| | Per Month |
|---|---|
| Business 1-party | $5.00 |
| Business 2-party | 4.00 |
| Residence 1-party | 3.00 |
| Residence 2-party | 2.50 |
| Residence 4-party | 2.00 |

(2) **Extra Mileage Charges For Service Rendered One, Two and 4-Party Subscribers Located Beyond The Base Rate Area Boundary.**

| Class | Extra Mileage Charge Per Quarter Mile |
|---|---|
| 1-party | 40c |
| 2-party | 20c |
| 4-party | 10c |

**UTILITY SERVICE TRUCK BODY** MODEL 60KD

*Designed for Telephone Installation and Service Work—And Engineered for Shipping Partially Knocked Down at a Low Initial Cost*

**Model 60KD** all steel service body, 75" long with generous side compartment space. Electric welded. Engineered for customer satisfaction. Designed for installation on a late model ½ ton chassis.

**Lower shipping costs** to you, due to small compact package. **Low priced** to you, because Model 60KD is jigged-constructed and produced in volume quantities.

**Easy to assemble,** requiring a minimum of time. Simple, easy to follow assembly drawing furnished.

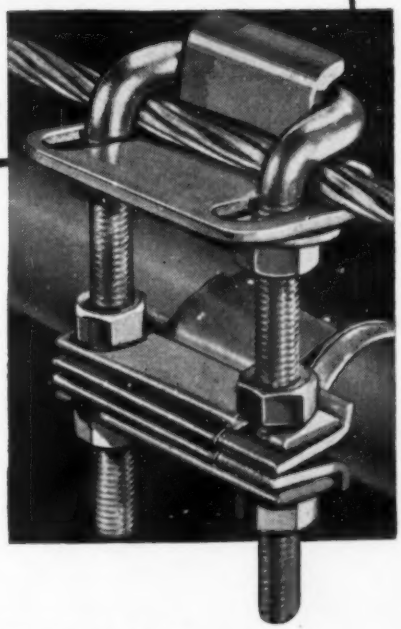
**Optional equipment** available; wire reels, 2 type overhead ladder racks, material trays, tarpaulin cover.

*Write for Bulletin "E"*

**ARTISAN PRODUCTS, INC.**

3540 West 140th Street — Cleveland 11, Ohio

"Cable Slippage Ended-
When We Installed
KEARNEY
GRADE CLAMPS"



That's what all users of these efficient, economical clamps have said. Kearney Grade Clamps are adjustable to any spacing of the cables and the messenger. Long bearing surface, free from sharp edges, gives firm gripping pressure without injuring the cable. It's easy to install this one-piece unit because bolts and nuts are not taken apart for the placing operations. Available in single and double length clamps for either one or two cables.

JAMES R. KEARNEY CORPORATION ST. LOUIS, MO.

*For complete information and prices see your jobber — or write*

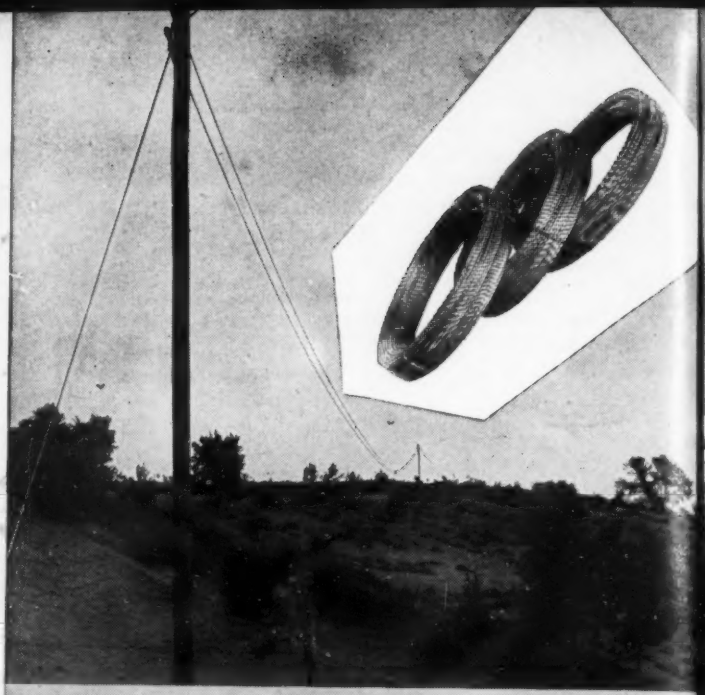
**JAMES R. KEARNEY CORPORATION** *Overhead and Underground Utility Equipment*

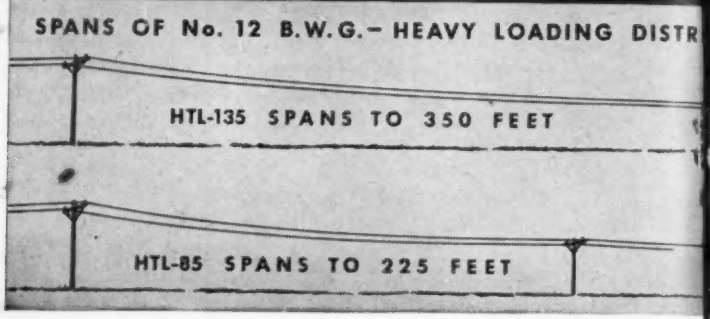
4236 CLAYTON AVE. • ST. LOUIS 10, MO.

# Successful INDEPENDENT TELEPHONE MAN Says:

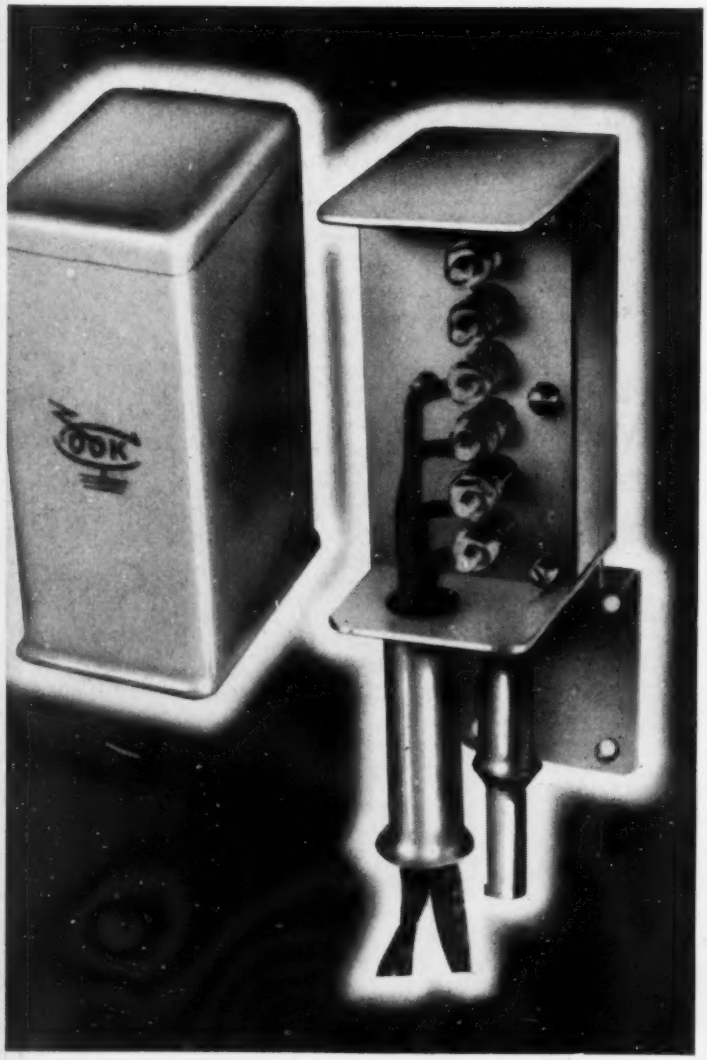
**C. T. WESTON,**
**Port Byron Telephone Co.**
**Port Byron, N.Y.**

"The Kellogg Company lives up to its reputation of standing behind its products. Kellogg's interest holds after the sale is complete".






**Save Two Ways**—on line wire replacement and construction by standardizing on INDIANA STEEL AND WIRE CO's Crapo HTL-135 and Crapo HTL-85 Line Wire. Because of their high-tensile strength, these wires permit long spans, enable you to realize substantial savings in construction and maintenance costs. Galvanized by the famous Crapo Process.




**Saves Wire and Maintenance!** The Cook 3-pair XB Terminal permits more economical subscriber distribution of rural cable. Allows reducing length of subscriber drops; eliminates long open-wire bracket lines. Avoids high-resistance joints and resultant maintenance. Made by COOK ELECTRIC COMPANY. Write Kellogg for full information!

for EASIER ORDERING
PROMPT HANDLING
QUICK SHIPMENTS

**...send your next order to KELLOGG**

When you order from Kellogg, you fill out just ONE order form for *all* your line supplies. Saves you time and work! Then your order gets prompt attention by experienced telephone men. No chance for slip-ups here! Finally, we ship quickly, from the distribution point nearest you. It's fast, sure service, and every item is *guaranteed!*

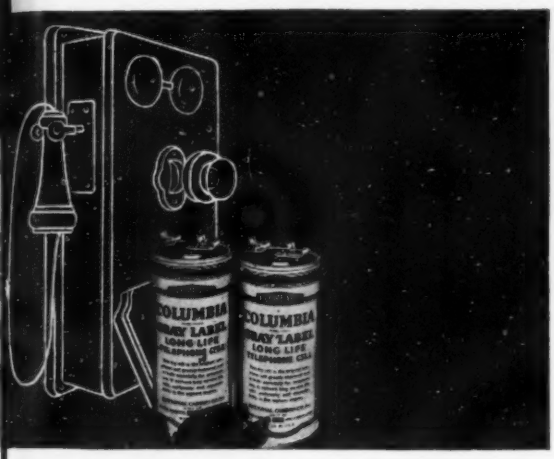
*For Service from a Nearby Distribution Point, Order Your Line Supplies from*

**KELLOGG** SWITCHBOARD AND SUPPLY COMPANY
SUPPLIES

*Factory and General Offices:* 6650 SOUTH CICERO AVENUE, CHICAGO 38, ILL.
*Branch Offices:* KANSAS CITY • SAN FRANCISCO • ST. PAUL • LOS ANGELES

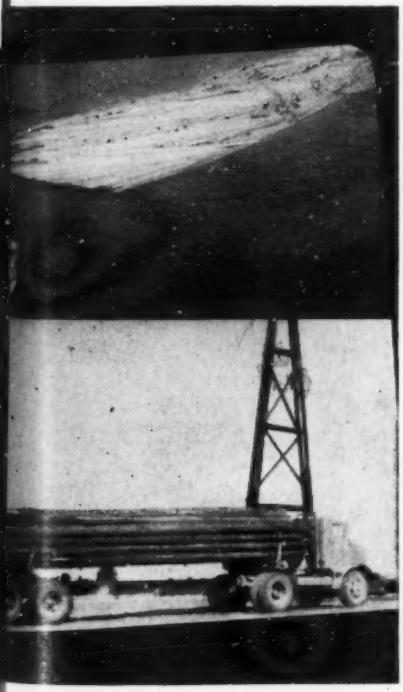
ALL OF THE ABOVE ITEMS MAY BE QUICKLY AND CONVENIENTLY ORDERED FR

**...s a Place for Everything!** That's what makes this TS-76 ...uck body so popular with telephone men. Contains handy, ...ried-size trays, material drawers with moveable partitions ...d sliding shelf for payoff reel. 47" wide x 80" long, this body ...eighs 700#. Made by AMERICAN COACH & BODY CO.

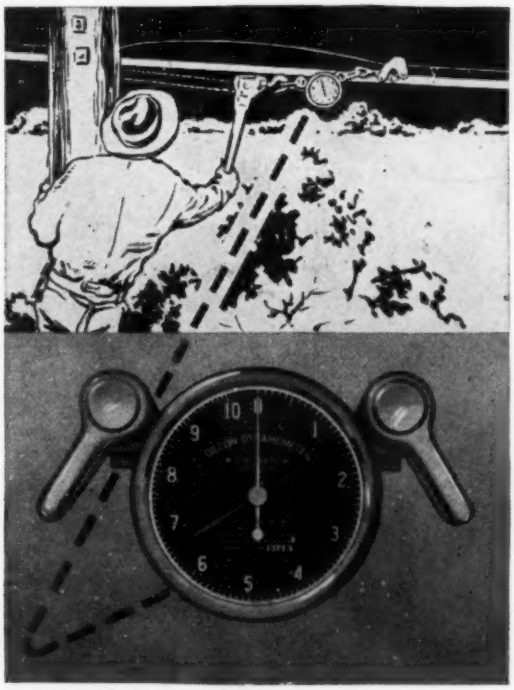



**...liable, Economical!** "Eveready" "Columbia" "Gray Label" ...y cells give you utmost dependability, plus economy thru ...gher sustained voltage and longer life. Made by NATION-...L CARBON COMPANY, INC., under rigid laboratory con-...ols. Always specify them to assure highest efficiency.

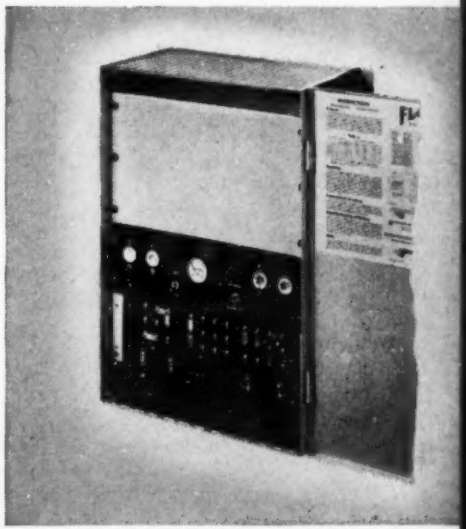
**Get Maximum Battery Performance** by choosing Gould Planté and Floté Batteries exclusively. They're built specifically for full float service over amazingly long periods of time. Telephone men everywhere find they cut maintenance and replacement costs to a minimum. Manufactured by GOULD STORAGE BATTERY CORP. Write for details.

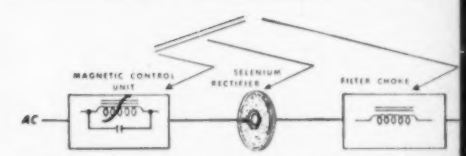


**...us for Strength and Durability,** Northern ...e and Western Red Cedar poles flow to-...the MAC GILLIS & GIBBS CO. plants in ...ady stream. There they're processed and ...ote-treated to insure longer life. Order ...now and watch replacement costs drop!



**Guard Against Overstrain** and wire service failures with the Dillon Dynamometer. Registers exact load in pounds on wire, messenger or guy strand, helps prevent devitalization of wires due to overstrain. Small, light, easy-to-use, it's a product of W. C. DILLON & CO., INC.






**No Moving Parts to Wear!** The Flotol automatic battery charger, made by LORAIN PRODUCTS CORP., consists of a phase-splitting transformer and a dry-disc rectifier. Delivers constant-voltage trickle charge, compensates for input and load changes.

# LOOKING AHEAD

Telephone users in America can look forward to service that will be even better than at any time in the past. The advertisement on the opposite page, which appears in April national magazines, holds this promise and points out the factors that have already made this nation's telephone service the envy of the world.

The text of the advertisement is taken from the American Telephone and Telegraph Company's Annual Report for 1948.

***AN ADVERTISEMENT OF THE BELL TELEPHONE SYSTEM***

# THE FUTURE HOLDS GREAT PROMISE

**Neither chance nor mere good fortune has brought this nation the finest telephone service in the world. The service Americans enjoy in such abundance is directly the product of their own imagination, enterprise and common sense.**

---

THE PEOPLE of America have put billions of dollars of their savings into building their telephone system. They have learned more and more ways to use the telephone to advantage, and have encouraged invention and initiative to find new paths toward new horizons.

They have made the rendering of telephone service a public trust; at the same time, they have given the telephone companies, under regulation, the freedom and resources they must have to do their job as well as possible.

In this climate of freedom and responsibility, the Bell System has provided service of steadily increasing value to more and more people. Our policy, often stated, is to give the best possible service at the lowest cost consistent with financial safety and fair treatment of employees. We are organized as we are in order to carry that policy out.

BELL Telephone Laboratories lead the world in improving communication devices and techniques. Western Electric provides the Bell operating companies with telephone equipment of the highest quality at reasonable prices, and can always be counted on in emergencies to deliver the goods whenever and wherever needed.

The operating telephone companies and the parent company work together so that improvements in one place may spread quickly to others. Because all units of the System have the same service goals, great benefits flow to the public.

Similarly, the financial good health of the Bell System over a period of many years has been to the advantage of the public no less than the stockholders and employees.

It is equally essential and in the public interest that telephone rates and earnings now and in the future be adequate to continue to pay good wages, protect the billions of dollars of savings invested in the System, and attract the new capital needed to meet the service opportunities and responsibilities ahead.

There is a tremendous amount of work to be done in the near future and the System's technical and human resources to do it have never been better. Our physical equipment is the best in history, though still heavily loaded, and we have many new and improved facilities to incorporate in the plant. Employees are competent and courteous. The Bell System policy of making promotions from the ranks assures the continuing vigor of the organization.

WITH these assets, with the traditional spirit of service to get the message through, and with confidence that the American people understand the need for maintaining on a sound financial basis the essential public services performed by the Bell System, we look forward to providing a service better and more valuable in the future than at any time in the past. We pledge our utmost efforts to that end.

Leroy A. Wilson
*President*
AMERICAN TELEPHONE AND TELEGRAPH COMPANY

***From the 1948 Annual Report of the American Telephone and Telegraph Company***

(Continued from page 38)

lowing plant construction situations:

*(A) Dead ends (head guy in line with lead).*

*(B) Corners in lines carrying up to 20 wires and pull is less than 50 feet.*

*(C) Corners in lines carrying more than 20 wires and pull is less than 35 feet.*

*(D) Right angle turn on single pole in two-wire bracket lead.*

*(E) Right angle turn on two poles (one side guy to each corner pole).*

Two guys are required in the following cases:

*(A) At corner, where pull is 50 feet or more in lines carrying up to 20 wires or 35 feet or more in lines carrying more than 20 wires. Each head guy is approximately in line with the direction of the lead it holds.*

*(B) On single pole using buck arm construction (lead guys, each in direction of lead it holds).*

*(C) At right angle corner on two poles in lines carrying more than 20 wires (lead and side guys on each corner pole).*

THE PROPER type of anchor to use depends on line load and kind of soil. Various types of anchors are in use. For long life and dependability, it is best to use patent anchors, rather than improvise anchors from wood logs or narrow disks. The less manual labor required, the more economical will be the installation.

Types of anchors in common use are, viz., screw, swamp, expanding, plate, and cone anchors.

Four-inch screw type anchors are very economical for rural line construction where the guy size does not exceed 2,200 lbs. They are adapted for installation in sand or mixed sand and clay.

Screw anchors are installed by merly screwing them into the ground at the desired angle. This job is made easier by first drilling a pilot hole with a ⅝ inch ground rod by the puddling process. A heavy drill motor, such as that used for earth augers, is ideal for rapid driving of screw anchors.

Swamp type anchors are of the screw type especially adapted to swampy locations. The anchor is affixed to a length of pipe and screwed into the ground by turning on the pipe with wrenches. Additional lengths of pipe are coupled as necessary to drive the anchor into the soft ground. When the anchor cannot be turned any further, a pipe eye nut is screwed onto the end of the last pipe for attaching the guy. Three sizes are available—10-inch for 6,000 lb. strand, 12-inch for 10,000 lb. strand, and 15-inch for 16,000 lb. strand. Expanding anchors have expansion blades that are spread out by striking the collar with a tamping bar. They are suited for use in ordinary soil, but are not recom-

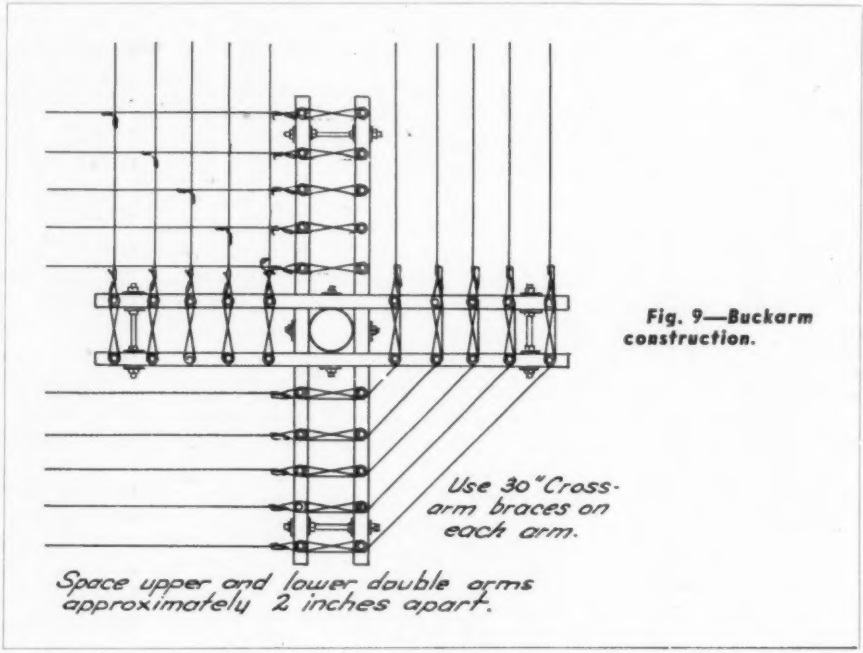



**Fig. 9—Buckarm construction.**

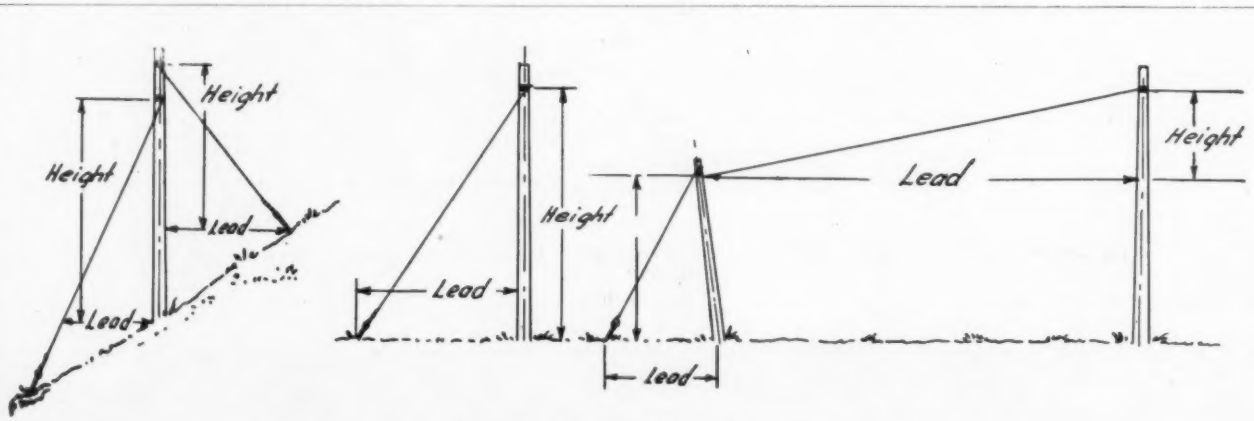



**Fig. 10—Lead-to-height guy ratios.**

## Hands | Off

IF YOU WANT to know what carelessness could mean to you just do this:

Have someone really tie your arms behind your back in such a way that any movement of the hands is impossible.

Then start trying to do all the things which you normally do with your hands. Try eating—try dressing yourself—try picking something up.

Try to write—try to hold a book or paper to read—try any one of the hundred other things in your everyday work or living.

Just be without those hands for an hour and you'll know how—almost in a flash—everything has changed in life.

It's true that you're not plunged into the darkness of lost sight—but you are sentenced to the frightfulness of lost touch and feeling and doing all the things we take for granted and seldom think about.

That's putting it pretty strongly on purpose. Whether it is an arm or hand or leg—thinking about it seriously is the only way we can really appreciate what an accident can mean to us—without going through the pain and suffering of the accident itself.

The single second of carelessness which causes an accident may well be the most costly second in our lives.

mended for locations where there is considerable water in the soil. Most commonly used sizes are 5-inch and 8-inch anchors.

To install an expansion anchor, bore a hole in the ground at the desired angle for the guy and at the proper location. Lower the anchor into the hole and strike the blade collar with a tamping bar. A change in the sound of the bar striking the collar will indicate when the anchor is fully expanded. Backfill the hole and tamp the dirt thoroughly.

Plate anchors are also suited for installation in ordinary soil, but should not be used in swampy or excessively sandy soil. Such anchors are adapted for heavy guys, around 10,000 and 16,000 lbs.

These anchors are installed by boring a hole at a 45 degree slant for the plate anchor and then driving a pointed anchor rod at right angles to this hole to hook into the plate inserted in the hole. A small pilot hole should be bored for the anchor rod, so that the rod will not miss the anchor hole.

Earth boring equipment can be utilized to bore the hole for expansion or plate anchors. Cone anchors are well suited for use in sandy or rocky soil where there is relatively little moisture. A hole of about the same diameter as the anchor is bored in the ground. The anchor is lowered into the hole and rocks are thrown in and tightly tamped against the anchor. The hole is then backfilled and thoroughly tamped.

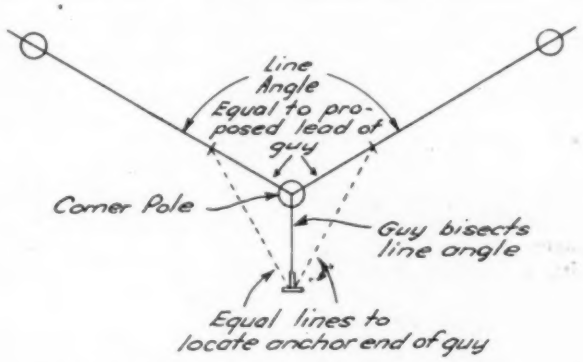



*Fig. 11—Finding correct location of guy.*

[ *To be continued in the May issue of TELEPHONE ENGINEER & MANAGEMENT.* ]


CHANCE
PIKE POLES
*with Reversible*
"SAFETY POINT"

Safety point can be reversed and inserted into ferrule, eliminating the hazard of sharp projections. Point can be replaced when worn.
Wire lift attachment can be inserted in the same ferrule.
Chance Pike Poles are made from Douglas or Western Fir, carefully inspected to assure freedom from all defects and lacquer finished.
Butt is reinforced with steel collar to give protection against splintering.

Chance Safety Pike Poles are used for raising telephone and power poles and as ground braces in pole setting operations. With the Wire Lift Attachment they are recommended for maneuvering telephone, and low voltage secondary conductors, into position.

Ferrule and pike may be purchased separately.

C4712

A·B·CHANCE CO · CENTRALIA MISSOURI

(Continued from page 41)

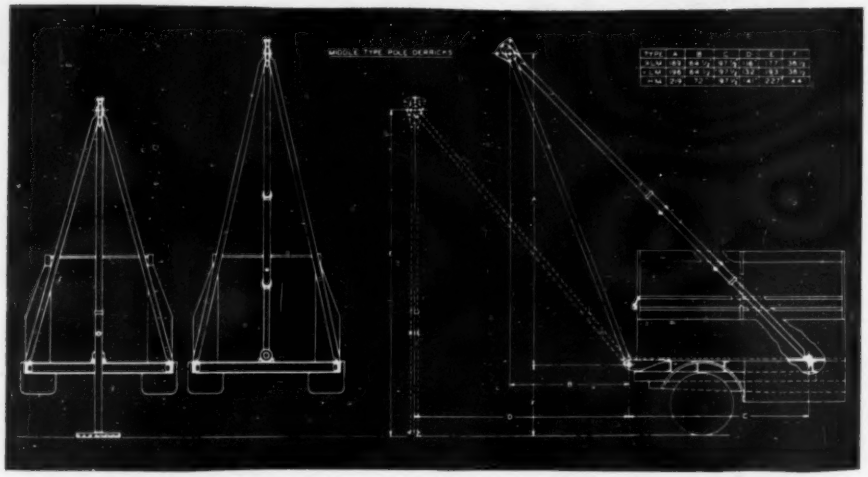


*Figure 10—Typical pole derrick arrangements. Dotted lines show ground position of derrick and solid lines, truck position. (Highway Trailer Company.)*

to the internal framework results in a rigid structure throughout and decreases the assembling cost.

Typical compartment layouts are illustrated in *Figures* 8 *and* 9.

### Ladder and Tool Racks—Pole Derricks

LADDERS are an indispensable tool for telephone workmen and several sizes of ladders are in general use in telephone exchanges. For installers, a 24-foot extension ladder and a 4-foot ladder or a short straight ladder are carried. Maintenance and construction workers need extension ladders and provision is always made for such ladders. Tools, such as pike poles, tree trimmers, digging bars, tamping bars, and shovels, require carrying in suitable racks, usually inside the full length of the compartment body side, as shown in *Figure* 2.

Where the truck utilizes a pole derrick, this unit is stored inside the full length of the compartment on one side as illustrated.

A typical pole derrick (*Figure* 10) consists of one middle leg made up of three sections and two side legs. Two steel plates with 8″ sheeve constitute the derrick head. Castings bolted to the truck bed and sides hold the legs in position.

Where a foot-plate is to be used, this consists of a 7″ x 24″ 15 pound

(Please turn to page 76)

***Standard POWERS Telephone Installation and General Service Body which was built for The Illinois Telephone Co., Bloomington, Ill. This unit is available in two sizes—74½" long for mounting on any standard ½ ton chassis and 84½" long, with proportionately larger compartment space and floor area, for ¾ ton chassis. Designated the Series 25T and 35T, these units are equally well suited to urban or rural work.***



STRONG
STRENGTH
IS ITS MIDDLE
COPP
MAKES
PERMA
IT'S Copperweld
LINE WIRE
It's the copper-protected alloy
core that gives Copperweld
Wire its permanent strengt
strength 2 to 3 times greater
hard-drawn copper wire. And
thick copper covering insepar
molten-welded to the steel ass
permanent protection against
Having the best electrical
ductance of any high-strength
ductor, Copperweld Line Wire
vides excellent voice transmis
and is ideal for high frequency
cuits. It is light in weight, pli
easy to string . . . and is espec
suited for long span construc
GRIP-FLEX 38
INSULATOR TIE
The Ideal
use with
weld Line
STROMBER
STROMBERG
Telephone
CARLSON
TELEPHONES, SWITCHBOARDS
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MENT AN

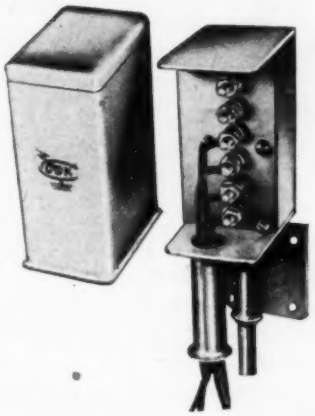
# ERG-CARLSON recommends...

## *for shorter drops... less bracket lines*
## cook 3-pair XB terminal

An addition to the well-known XB family of unprotected terminals, this development provides far better, more economical means of subscriber distribution out of rural cable.

The 3-pair XB Terminal was especially designed to reduce to a minimum all factors that would cause high resistance and the possibility of line leakage and maintenance. Hence the heavy, close-fitting welded zinc cover; the non-corrosive Monel faceplate on which are mounted the highly insulated cable studs; the use of the flanged tube as an entrance for drop wires. This tube can be completely sealed after the drop wires are installed.

The new Cook Terminal measures 7½" high, 3¼" deep and 2½" wide. It is furnished with or without cable stub, to user's specification.



## *24-hour guaranteed direct current, with*
## electrox battery eliminator

Designed specifically for the Operator's Circuit on Magneto Switchboards, the PA-05004 type illustrated guarantees current even if your AC fails!

When operating from 110 volt, 60 cycle lighting circuit, it delivers a constant, humless direct current. If the alternating current supply fails, a built-in Power-off Relay automatically transfers the operator's circuit to stand-by dry cells.

Other models available for Lamp Signal (PBX) and Automatic (PAX) systems. Products of Rectifier Division, Schauer Machine Co.

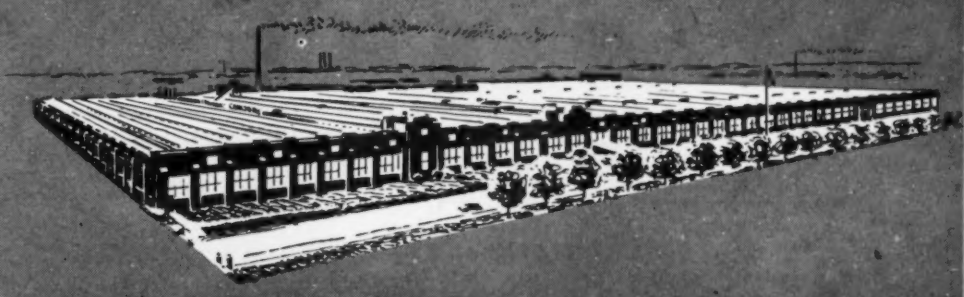
## *for rural lines with fog, rain, humidity—*
## hemingray insulators

***(Left):*** Hemingray "No. 9." Made from only 9 oz. of glass, but with a maximum leakage path approaching standard long-distance design. Inner skirt surface well protected from rain-splash; long skirt protects pin itself.

***(Right):*** Hemingray "No. 14." Its double-petticoat feature is useful wherever fog and humidity prevail. Production economy in design and lightness make its low cost attractive for rural telephone line budgets.

*Manufactured by American Structural Products Company*

# RLSON



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MENT AND ELECTRONIC CARILLONS • INDUSTRIAL, INTERCOMMUNICATION SYSTEMS • RADIOS, RADIO-PHONOGRAPHS, FM AND TELEVISION

New LIGHTWEIGHT ELECTRIC PLANT

5000 WATTS D.C.

Weighs only 315 lbs.!

Model 5CK-115M, 5,000 watts, 115 volts D.C.

Use fast-working electrical tools on any construction or maintenance job with this high capacity, portable, compact electric plant. Equipped with four-receptacle box for direct plug-in of tools or lights. Available with carrying frame, or dolly-mounted. Powered by Onan 10 HP, two-cylinder, 4-cycle, air-cooled engine. Shipped complete . . . ready to go!

*NEW ONAN "CK" ELECTRIC PLANTS are available in 5000 watts D.C., 115 and 230 volts; 2000 and 3000 watts A.C. in all standard voltages. COMPLETE ELECTRIC PLANT LINE INCLUDES: A.C.—350 to 35,000 watts in all standard voltages and frequencies. D.C.—600 to 15,000 watts, 115 and 230 volts. Battery Chargers—500 to 6,000 watts, 6, 12, 24, 32 and 115 volts. ONAN AIR-COOLED ENGINES—CK: 2-cylinder opposed, 10 HP. BH: 2-cylinder opposed, 5½ HP. IB: 1-cylinder, 3¼ HP.*

Onan PRODUCTS

*Write for catalog*

D. W. ONAN & SONS INC.
5904 Royalston Ave., Minneapolis 5, Minn.

ONAN ELECTRIC PLANTS

OLIVER
TELEPHONE LINE
BRACKETS
FROM THE COMPLETE LINE OF OLIVER POLE LINE MATERIALS

You will find all types and sizes of brackets required for telephone work in the complete Oliver line. Some of the popular styles are illustrated. Various types suit the practices and requirements of leading telephone, telegraph and railroad companies. For full details see Catalog 43.

OLIVER
IRON AND STEEL
CORPORATION

South Tenth and Muriel Streets • Pittsburgh 3, Pa.

MAKERS OF POLE LINE MATERIALS SINCE 1894


# News Briefs

*(Continued from page 32)*

plemented from well developed hobbies.

There are many types of hobbyists, such as, collectors who derive their pleasure and satisfaction in the pride of possession and in adding to their collection from time to time. Among the things collected are, stamps, coins, dolls, buttons, pencils, pitchers, and many other items too numerous to mention. Making things with their hands, such as, rug weaving, wood carving, etc. appeal to many hobbyists.

Some hobbyists derive pleasure in the development of the finer arts—music, literature, etc., or in sports, while others make a practice of visiting the sick, sending cheerful messages to those who are ill and condolences to the bereaved.

Developing the growth of rare flowers and plants, vegetable gardening, canning, reading to and shopping for the aged, are among other pleasant and satisfying hobbies. There are so many hobbies to pursue, and anyone interested can find one to his or her liking. In addition to bringing personal satisfaction and happiness, a hobby also will frequently result in bringing happiness to others.

Hobby exhibits are becoming increasingly popular and, in the future, with the cooperation of its members, the Independent Telephone Pioneer Association probably will sponsor hobby shows for Independents at its annual meetings in Chicago, Ill., held during the conventions of the United States Independent Telephone Association.

The Pioneer Hobby Committee will welcome suggestions and ideas in promoting hobbies among the members of the Pioneer association. Correspondence should be sent to: *Hobby Committee, Independent Telephone Pioneer Association, 304 South Amos Ave., Springfield, Ill.*

## Common Battery Service For Hill City, Kansas

The American Telephone Co. has started installing telephones for the common battery system expected to be in operation at Hill City, Kans., within the next few months. Most of the messenger strand and a considerable amount of cable have been installed.

## *Up on the farm —*

The number of U. S. farm homes with telephones is going up fast. Through the efforts of the entire telephone industry, the percentage of farms having telephones has about *doubled* in the past eight years. Western Electric—as a manufacturer of telephone equipment—is proud to have a part in the continuing expansion of rural telephone service.

**Western Electric**

**TELEPHONE APPARATUS AND CABLE**

(Continued from page 72)

"I" beam. The pole derrick is usually designed for either ground position or truck position of the middle leg as indicated in *Figure* 10. (With the middle leg in position on the truck, the lifting capacity is about 40 per cent less than with this leg in the ground position.)

Winches are needed in conjunction with pole derrick equipment. These winches operate from a power take off attached either through the SAE opening provided in the side of the truck transmission or directly to the truck drive shaft. Either single or double drum, fixed or free drum type is available.

Winch line capacities for given drum sizes are shown in *Table II*.

Power take offs are useful for more than driving the winch. For example, a power take off is utilized for operating earth borers.

***Table II—Winch Line Capacities for Given Drum Sizes***

| Size of Steel Winch Line | *No. of Feet of Line On: 4" drum | 6" drum | 9" drum | 12" drum | 23" drum |
|---|---|---|---|---|---|
| 1/4" | 800 | 1200 | 1800 | 2400 | 4600 |
| 5/16" | 578 | 867 | 1299 | 1734 | 3323 |
| 3/8" | 356 | 534 | 801 | 1068 | 2047 |
| 7/16" | 240 | 360 | 540 | 720 | 1380 |
| 1/2" | 200 | 300 | 450 | 600 | 1150 |
| 9/16" | 164 | 244 | 370 | 492 | 950 |

*For 8" drum diameter.

### Features of Light Service Truck Body

THE LIGHT service truck (*Figure* 7) is well suited to installation and light maintenance service. The manufacturer has introduced several new features that are considered to be of advantage to the customer.

The body is designed for shipping to the customer partially knocked-down, resulting in a smaller shipping package and substantially lessening the freight cost. Crating costs have been reduced.

The body is not shipped to the customer in a multiple of parts. Instead the body is sent in one package consisting of side compartments, front body panel, corrugated steel floor with cross channels, and tailgate. Holes are drilled and matched for assembly by the customer in his own garage. A kit of caps, screws, and special lock nuts are furnished by the manufacturer. The customer only has to drill four holes in the floor cross channels to attach the body to the chassis. Assembly instructions enable this work to be done by an unskilled workman.

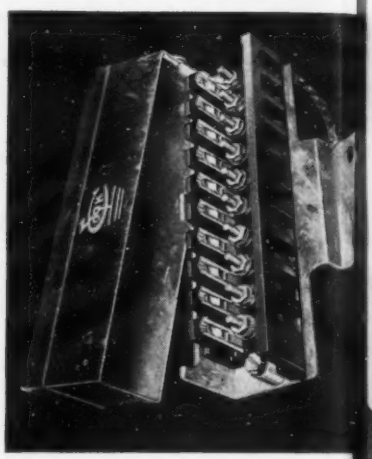
The body includes a sawholder, axe bracket holders, and a material tray running the full length of the right side horizontal compartment. Overhead ladder racks with spring hold-downs are available as optional equipment (*Figure* 9.)

Body dimensions are as follows: Horizontal compartments, right and left sides—12-½" deep x 17½" high x 74½" long; lower front compartments, right and left sides—12½" deep x 16½" high x 14" wide; inside bulk loading space—46½" wide x 74⅞" long; height of side boxes from floor level—29".

### Conclusion

THE DESIGN of truck bodies discussed in this article is based on the experience of telephone companies over a period of years. The manufacturers cooperate by adapting truck chassis sizes and weights to the desired body dimensions and weights and by developing manufacturing techniques that decrease the manufacturing cost and speed delivery of the finished product to the customer. Experiments are being conducted to improve the materials composing the truck bodies in an effort to reduce the total truck weight. For example, pole derrick legs made from aluminum are being tried out with the purpose of producing light weight pole derricks.—THE END.

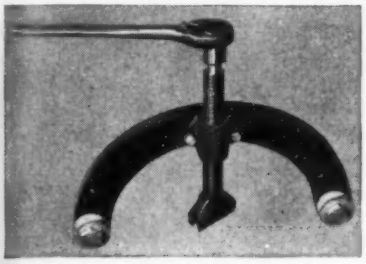


STROMBE
cook type 7
high-potential
lightning arreste

Outdoor pole type arreste
vides lightning protection
atmospheric static drain for
pairs of open-wire circuits,
drop wires and cables leadi
unprotected terminals.
Equipped with:
1. Single piece molded Bakelit
lation and fanning strip for st
and high resistance. Fannin
is closed with a thin film of
lite until drops are run.
2. Non-corrosive metal hood,
dur studs and galvanized mo
bracket for long service life.
3. Phosphor-bronze spring cli
accommodate Cook Tru-Gap
grounding lightning dischar
STROMBERCAR
STROMBERG Telephone CARLSON
Factory,
Branch O
Kansas C
Stromber
TELEPHONES, SWITCHBOARDS

# BERG-CARLSON recommends...

## ratchet handle slack puller

*made by Cable Spinning Equipment Co.*

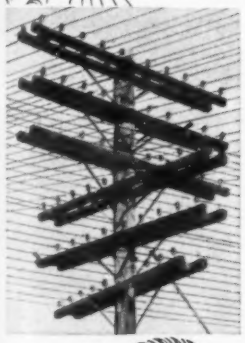


The same dependable Slack Puller, but with a ratchet added. This type of handle enables the operator to pull slack with the Little Giant Slack Puller, requiring even less effort than would be needed with the conventional model.

***The correct tool for those who use the Puller day after day.***

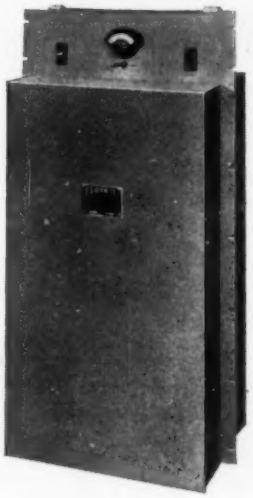
## "dependable" *means both the trade-mark & the guarantee of cross-arms by*

## American Cross-Arm Inc.



The finest pole and wire installation is useless if cross-arms fail. "Dependable" Cross-Arms are all that the name implies—made of sturdy, American woods, long seasoned, fashioned and finished to stand every weather condition from desert heat to mountain blizzards.

In Douglas Fir—Creosoted Yellow Pine or Gulf-Red Cypress.



Model 1200 B
Single Phase
24 Amps.
50 Volts

## flotrol

*automatic battery chargers*

**SUPERIOR IN 5 WAYS:**

1. **ECONOMY:** Experience has proven FLOTROL can save on power costs up to 20% per year.
2. **DEPENDABILITY:** Mechanical failures are cut to next-to-nothing because FLOTROL has no moving parts.
3. **RESPONSE:** FLOTROL answers load needs *instantly*—keeps battery fully charged at all times.
4. **LIFE-SAVING:** FLOTROL works while your battery rests—gives any battery longer life.
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FREE! Write for Bulletin 137, a complete catalog of FLOTROL, its technique, and its models.

## RCARLSON

Factory, General Offices: Rochester 3, N.Y.
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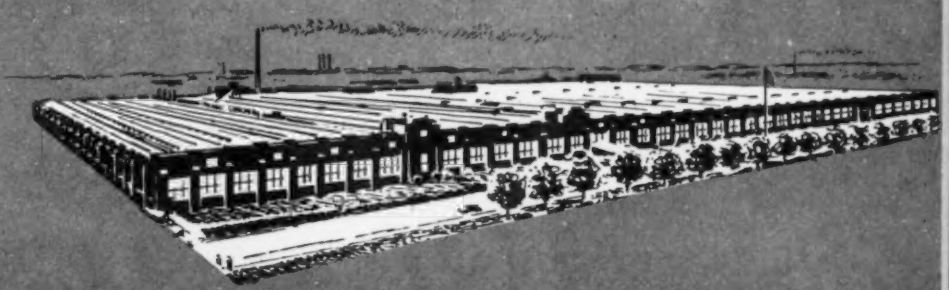
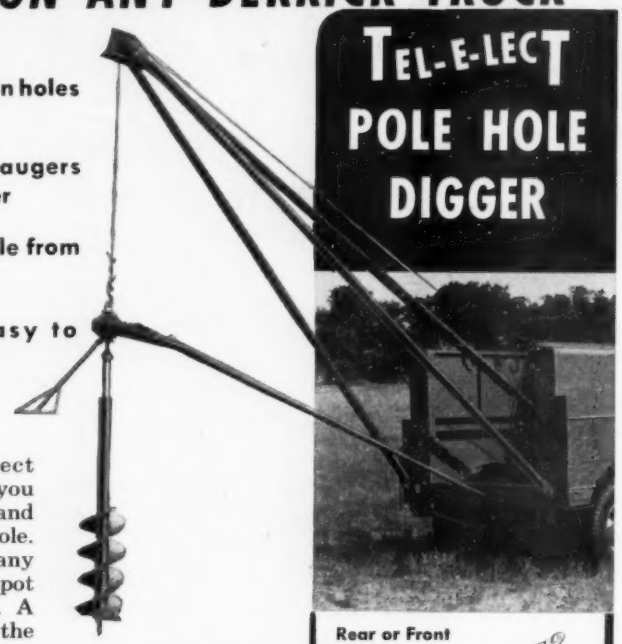


IPMENT AND ELECTRONIC CARILLONS • INDUSTRIAL, INTERCOMMUNICATION SYSTEMS • RADIOS, RADIO-PHONOGRAPHS, FM AND TELEVISIO

## *Operates* ON ANY DERRICK TRUCK

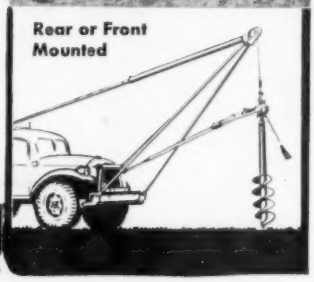
- Adjustable for clean holes to 8 ft. deep
- Interchangeable augers 9" to 16" diameter
- Drills a straight hole from any truck position
- Easy to use—easy to transport



**TEL-E-LECT POLE HOLE DIGGER**



WITH the Tel-E-Lect Pole Hole Digger, you use the same truck and crew that sets the pole. You can drill a hole any place that you can spot the pole derrick. A single bolt attaches the digger to the truck; it works suspended from the derrick. Powered by the truck motor through a power take-off shaft, Tel-E-Lect is raised and lowered by the winch line. Fits the budget of even the smallest utility, and quickly pays for itself. *Ask for circular.*




**TEL-E-LECT PRODUCTS, Inc.**

9613 MINNETONKA BOULEVARD, MINNEAPOLIS 16, MINNESOTA



**Users Find that**

**COFFING *Safety-Pull* HOISTS**

—**MULTIPLY MANPOWER** Extremely easy to operate, they help workmen do more work, faster, easier. Ruggedly built to handle wider range of jobs.

—**COST LESS TO USE** Moderately priced, Coffing Ratchet-Lever Hoists have many parts of drop-forged, heat-treated alloy steel, other long-life features to hold down replacement and maintenance costs.

—**HELP RAISE SAFETY STANDARDS** Coffing safety features include dual ratchet and pawl assembly that cannot slip or drop load; "Safety-Load" handle to avoid dangerous overloading.

**WRITE FOR BULLETIN U4SP,** giving full information on nine models of the Safety-Pull hoist—¾ to 15 tons capacity. See how they can help your workmen do *more* jobs—faster, easier, safer.

**AMAZING HOIST-JACK IS A HOIST— A JACK—A PULLER**

—3 useful tools in 1. Built in two sizes, 2000 lb. and 4000 lb. to handle scores of jobs. Send for Bul. U4HJ.

**COFFING HOIST COMPANY • Danville, Ill.**

ELECTRIC, SPUR-GEARED AND DIFFERENTIAL CHAIN HOISTS; "MIGHTY MIDGET" PULLERS; LOAD BINDERS


## Carl H. McKenzie Elected Pres. of Pennsylvania Tel. Corp.

Carl H. McKenzie was recently elected president of Pennsylvania Telephone Corp., a subsidiary of General Telephone Corp. He succeeds Harry M. Engh who was named chairman of the board.

Mr. McKenzie also has been elected to succeed Mr. Engh as president of the five other companies comprising General Telephone's eastern group, namely: Ohio Associated Telephone Co., Upstate Telephone Corp. of New York, Tri-State Associated Telephone Corp., Central Vermont Telephone Corp., and Delaware Valley Telephone Co. Mr. McKenzie was formerly vice president and treasurer of all the eastern companies.

Born in Texas in 1899, Mr. McKenzie was graduated from Lehigh University and later received Masters degrees from both Lehigh and the Harvard Graduate School of Business Administration. After six years with the Public Service Commission of Pennsylvania, he joined Pennsylvania Telephone Corporation as assistant treasurer.

## H. T. McCaig Joins Lorain Products Corp.

C. P. Stocker, president and general manager of the Lorain Products Corp., Lorain, Ohio, has announced the appointment of H. T. McCaig as special field representative. Mr. McCaig will devote his time to the promotion of Lorain's SUB-CYCLE (Ringing Converter and FLOTROL (Constant Voltage Battery Charger).

Until his retirement on December 31, 1948, Mr. McCaig was associated with the Stromberg-Carlson Co. for more than 37 years, working first as

*H. T. McCAIG*

# FOR THESE 3 APPLICATIONS...

## GraybaR recommends WHITNEY BLAKE

For wire that's built specifically for the job . . . wire that must give long service even when subject to weather extremes, chemical fumes, abrasion, and moisture, get W-B wire from Graybar. Whitney Blake developed these outstanding products as a result of careful study, laboratory research, and field tests. Our long experience in supplying the telephone and railway fields with W-B wire has convinced us that substantial savings in maintenance costs are made through its long life.

### *A Single Source for Everything Electrical*

In addition to wire, Graybar distributes hundreds of other telephone supplies. From fuses to switchboards . . . poles to insulator pins . . . tools to cable terminals . . . all are first quality products of leading manufacturers.

Whatever your construction or maintenance requirements, you can get everything from near-by Graybar. A Graybar Telephone Specialist can help you solve any particularly knotty problems. Your regular Graybar representative is on hand to supply you with information on wiring, signaling, lighting or power installations.

4937

**EXTERIOR BRIDLE, DROP, DISTRIBUTING WIRE** — *Use W-B Teleprene.* Jacketed with a flame-resistant, tire-tread type Neoprene jacket, Teleprene out-performs other similar covered wires. Teleprene conductors are "Teleplated." This method of bonding the copper to the jacket gives enduring adhesion equal to the tensile strength of the conductor itself. Temperature extremes do not affect the strength or flexibility of Teleprene. A ridged tracer is molded into the jacket to assure quick, positive polarity identification.

**INSIDE OR DISTRIBUTING FRAME WIRE** — *Use W-B Plastite.* A soft copper conductor insulated with a tough molded plastic jacket, it is ideal inside for wiring and for wiring distribution frames and cross-connecting racks. The rugged jacket is high in dielectric strength. It is available in brown, ivory, and in black-and-red twist.

**UNDERGROUND INSTALLATIONS** — *Use W-B Teleseal.* A special water-resistant jacket for low-voltage installations. For direct burial underground even where water or dampness is ordinarily a problem. Teleseal's hard copper conductors are coated with lead and brass, by the Teleplate process to give utmost corrosion resistance and lasting insulation adhesion. The tough Neoprene jacket bears a double-ridged pole tracer. Teleseal is stable in operation even after long periods under water. The low moisture absorbing insulation results in low transmission losses at telephone frequencies.

*Everything in Telephone Supplies*
*Via* GraybaR

IN OVER 100 PRINCIPAL CITIES

# KLEINS

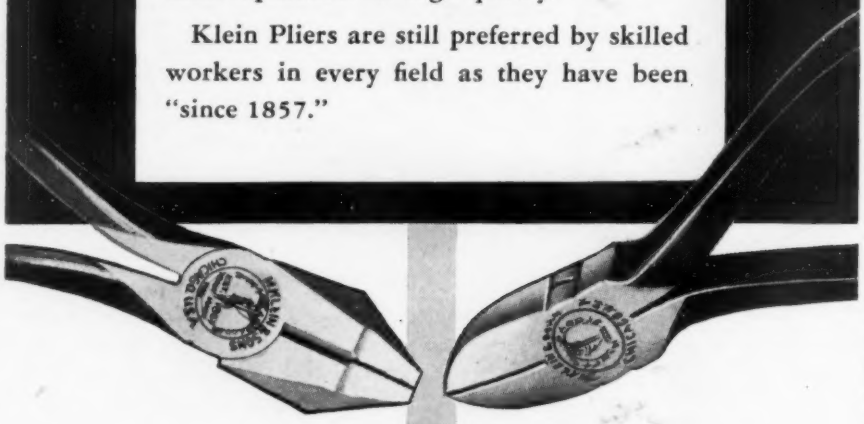
FOR MEN WHO WANT

*the Best*

• Ever since the first communication and power lines were strung, Klein Pliers have been the favorite tools of electrical workers.

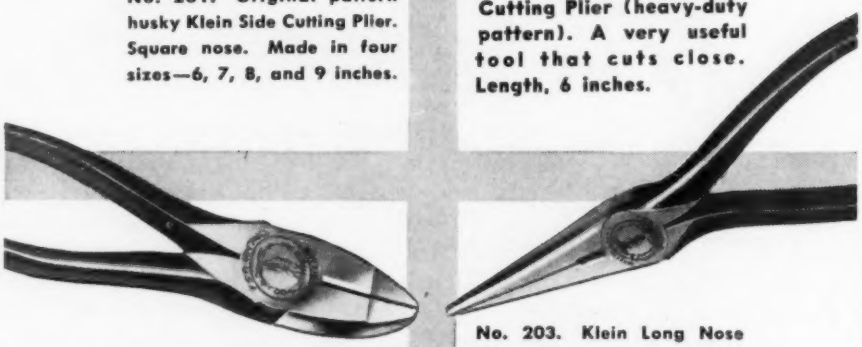
Today, Klein Pliers are made with the same exacting care that has won these tools their reputation for high quality.

Klein Pliers are still preferred by skilled workers in every field as they have been "since 1857."



**No. 201. Original pattern husky Klein Side Cutting Plier. Square nose. Made in four sizes—6, 7, 8, and 9 inches.**

**No. 242. Klein Oblique Cutting Plier (heavy-duty pattern). A very useful tool that cuts close. Length, 6 inches.**



**No. 201 NE. The famous "streamlined" Klein Side Cutting Plier. Made in four sizes —6, 7, 8, and 9 inches.**

**No. 203. Klein Long Nose Plier. Long reach of jaws permits getting into difficult places. Made in 6 and 7-inch sizes.**

*The Klein Pocket Tool Guide, showing the Klein line and containing useful tool information, will be mailed on request.*

Established 1857

Mathias KLEIN & Sons

Established 1857 — Chicago, Ill., U.S.A.

3200 BELMONT AVE. CHICAGO 18, ILL.


a "traveler" for that company in the Nebraska and Iowa territories, then as assistant Chicago division manager from 1921 to 1936, and in 1936, on Mr. Shafer's death, as division manager.

Previous to his association with the Stromberg-Carlson Company, Mr. McCaig was with the Northwestern Bell Telephone Co. for eight years, working up in the installation, construction, and operation departments from installer to special assistant traffic engineer.

Mr. McCaig is married and has a son, married daughter and three grandchildren. He is a life member of the Independent Telephone Pioneer Association and during this long period of years in the telephone field has made a host of friends.

## Federal Equipment To Be Installed At La Crosse and Tallahassee

Orders for Federal Rotary Dial Switching equipment, totaling 13,800 lines and 24,000 terminals, have been placed by the La Crosse (Wis.) Telephone Corp., and the Southern Telephone Co., Tallahassee, Fla., both affiliates of the Central Telephone Company, with the Federal Telephone & Radio Corporation, Clifton, N. J.

The La Crosse installation will be Federal's 7A-2 system and will replace the existing manual central office of 33 positions of local common battery switchboard. It is made up of 7,500 lines consisting of 7,400 individual, PBX and party, and 100 paystation lines; and 14, terminals consisting of 14,500 individual, PBX and party, and 100 paystation. In addition, the installation will have an official PABX with 60 line initial capacity, a 2 position repair clerk desk and a 3 position local test board. All toll and other manual boards will be furnished and operated by the Wisconsin Telephone Company.

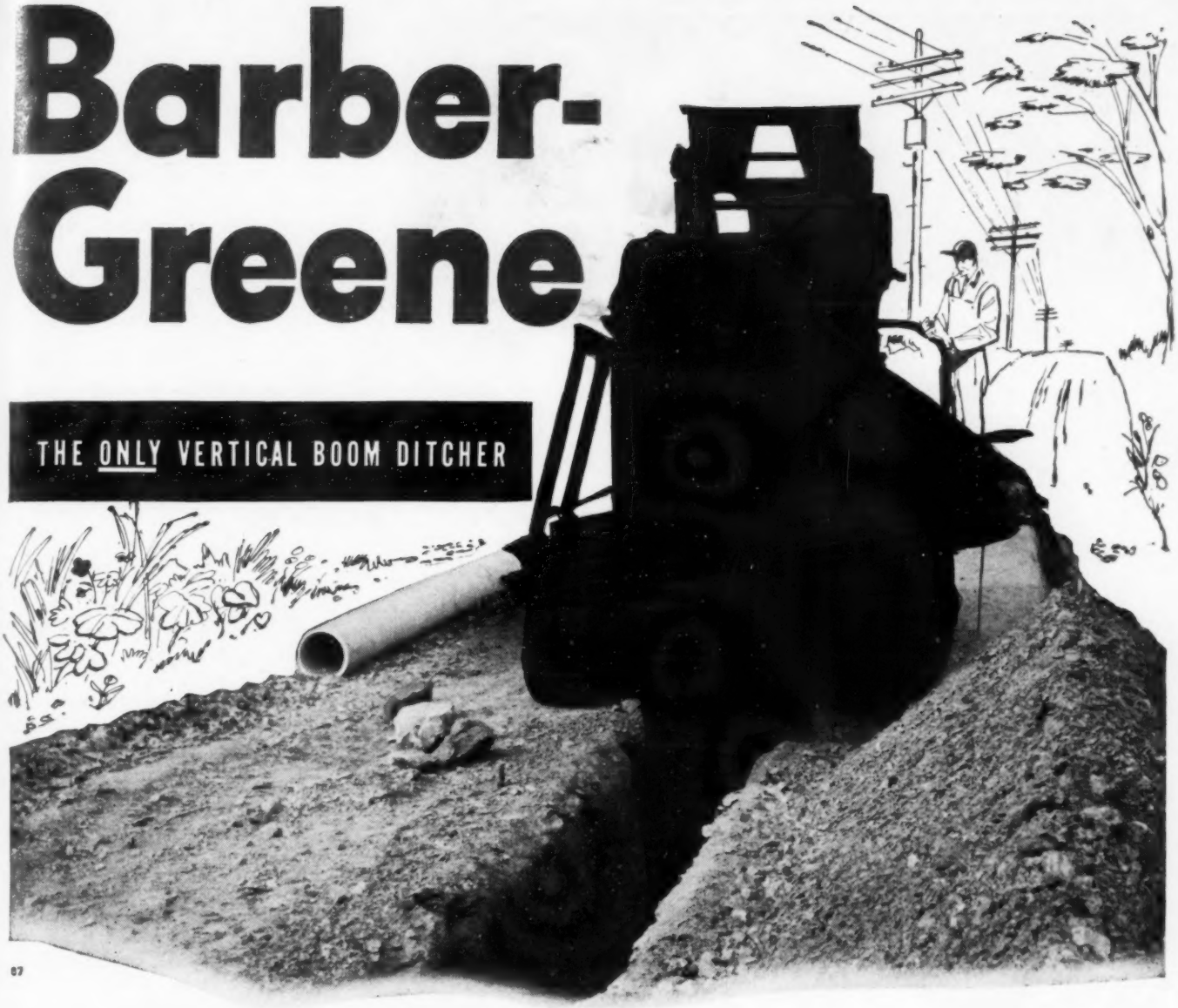
The installation will be arranged for operator dialing from Chicago, Eau Clair, Wisconsin and other points equipped for this type of operation. A 100 kva Diesel generator will be available for emergency power, and the entire installation will be housed in a two-story addition, approximately 90 feet by 59 feet, to the present central office building.

The La Crosse satellite central office at Onalaska, Wisconsin will be equipped with 300 lines and 400 terminals of 5 frequency terminal-per-line equipment, replacing a magneto switchboard. Service between Onalaska and La Crosse will be free, and toll dial service assistance, information,

(*Please turn to page* 82)

# Barber-Greene

THE ONLY VERTICAL BOOM DITCHER



## *digs clean—leaves no ramp • discharges on either side*

Here's an exclusive ditcher feature that saves a lot of hand labor. The Barber-Greene's vertical boom digs *straight down*, right up to walks, foundations, underground piping and mains, etc. *There's no ramp to run up digging costs.*

Closely spaced, self-cleaning "kick out" buckets, traveling at high rate of speed, cut like a milling machine . . . leave a clean-walled trench. It's this efficient operating principle that gets the B-G Ditcher through materials as tough as coral rock — down to 8 feet, 3 inches; widths up to 24 inches. Feeding speeds range from 10 inches to 8 feet per minute.

*An adjustable spoils conveyor discharges on either side,* and the automatic overload release protects both the machine and hidden objects.

Find out how this compact, maneuverable, easily controlled unit can keep your trenching costs down . . . and what varied work it will perform.

BARBER • GREENE COMPANY, AURORA, ILLINOIS

*Constant flow Equipment*

LOADERS PERMANENT CONVEYORS PORTABLE CONVEYORS COAL MACHINES BITUMINOUS PLANTS FINISHERS DITCHERS

ALPHADUCT WIRES

FOR *All* TELEPHONE REQUIREMENTS

LONG LIFE

Neoprene Jacketed
Drop and Bridle Wire

Weatherproof Braided Drop and Bridle
Interior - Tree - Ground - Switchboard -
Pothead - Cable Terminal - Instrument

*Manufactured and Tested to Rigid Specifications*

ALPHADUCT WIRE & CABLE CO.

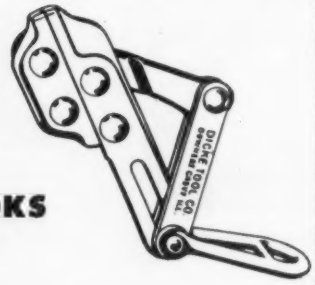
Milltown, New Jersey Telephone: Milltown 8-0030



SINCE 1886 DICKE

Line Tools...

*for Construction and Maintenance*




PIKE POLES · PEAVIES

WIRE GRIPS · TACKLES

CANT HOOKS · LUG HOOKS

PAYOUT REELS

Experienced crews prefer Dicke line tools for construction and maintenance work. They depend on their rugged durability—their tough, sure strength in the pinches. From pike pole to payout reel Dicke line tools are uniformly satisfactory. You'll find a Dicke tool for every construction need—all listed in the Automatic Electric catalog.

Recommended and Distributed by

AUTOMATIC ELECTRIC SALES CORPORATION

1033 W. Van Buren St. Chicago 7, Illinois


complaints and manual services will be handled through La Crosse.

The initial Federal 7A-2 equipment to be installed at Tallahassee, a single office area, will be 6,000 lines—5,700 individual, PBX and party; 100 rural and 200 paystation; and 9,000 terminals —8,600 individual, PBX and party; 200 rural and 200 paystation. There will be a 24 position toll board, consisting of 4 positions for inward and through toll and 20 positions of CLR. Also included are a one position repair clerk desk, a 3 position local and toll test board, and a 3 position information and intercept board. All manual boards will be supplied with Federal's key pulsing sets.

## Copperweld Steel Company President Dies

S. E. Bramer, president and one of the founders of the Copperweld Steel Co., Glassport, Pa. and Warren, Ohio, was fatally stricken with a heart attack on March 24 in Florida. He was 63.

Mr. Bramer recognized the advantages of covering steel wire with copper and in 1915 helped to organize the

***S. E. BRAMER***

Copperweld Steel Company. For the past 20 years he has been its president.

His rise to a very high position in the business world is a typical American success story. Mr. Bramer was civic minded and a patron of the arts. He was also extremely liberal in the field of philanthropy.

## Stromberg-Carlson Advances Ralph H. (Cy) Barger

Lloyd L. Spencer, Stromberg-Carlson vice-president and general sales man-

(*Please turn to page* 84)

# ACORN INSULATED WIRE

- Drop Wire
- Distributing Wire
- Bridle Wire

in ACORN'S "through air weild" NEOPRENE jacket . . .

- Inside Wire
- Jumper Wire
- Cross Connecting Wire
- Plastic Insulated

with Enduring ACORNITE

32 years of specialization in the manufacture of communication wires has built an enviable performance record for ACORN Drop Wire.

ACORN'S exclusive Carton packaging protects quality and conserves stocking space.

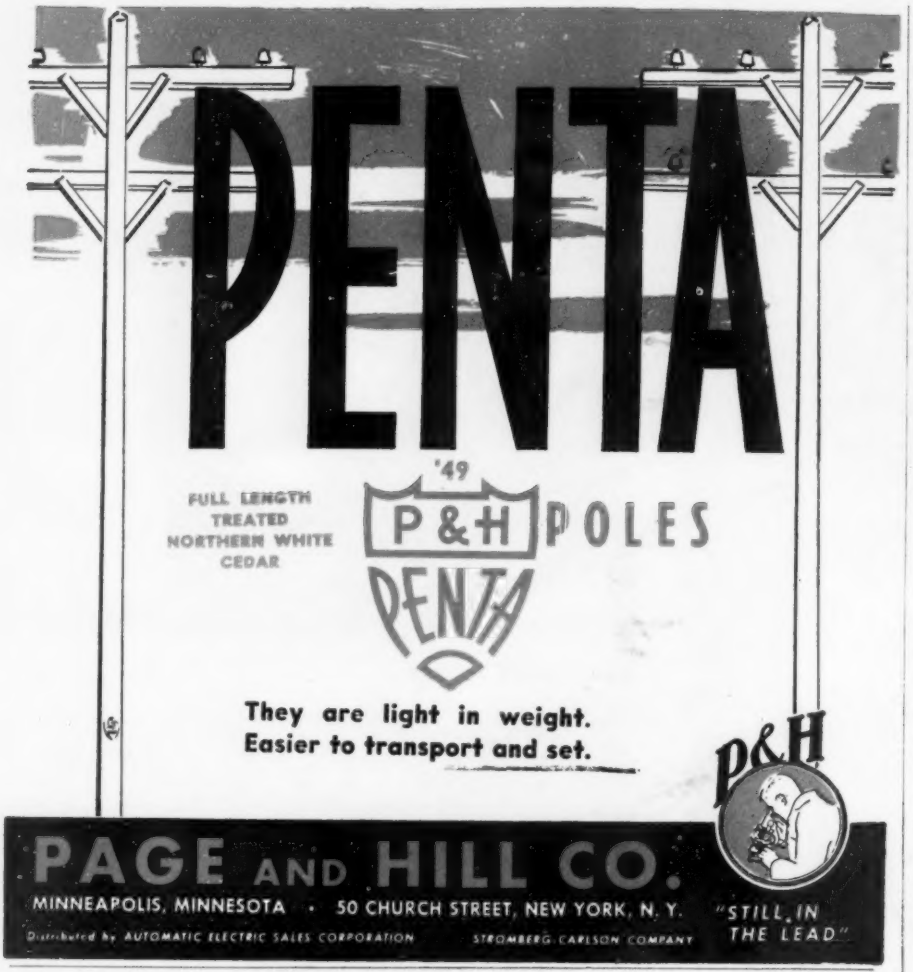
***Write or wire for samples today***

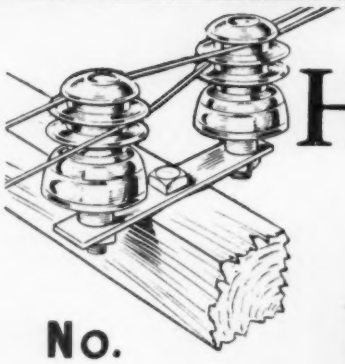
## ACORN INSULATED WIRE CO., INC.

225 KING STREET, BROOKLYN 31, N. Y.

**LEICH SALES CORP.**
427 W. Randolph St., Chicago

**LINDSAY SUPPLY CO.**
4815 Superior Ave., Cleveland



New
Hemingray
DEEP GROOVE
TRANSPOSITION
Insulator
No. 56
ELIMINATES TIE WIRES

Smaller, lower in cost than other deep groove insulators, this new Hemingray No. 56 was designed especially for "point type" transpositions on rural lines. Extra-deep grooves eliminate need for tie wires. Retranspositions can be made without cutting by simply rolling in old lines at transposition points. No special hardware is required —insulators can be mounted on tandem bracket, as shown above, or on standard four-pin brackets. Packed 40 to a carton.

RECOMMENDED AND DISTRIBUTED BY

AUTOMATIC ELECTRIC
SALES CORPORATION

1033 WEST VAN BUREN STREET, CHICAGO 7, ILL.

RALPH A. BARGER

ager ,has announced the promotion of Ralph H. (Cy) Barger to the post of Commercial sales manager, succeeding Eugene A. Reinke who retired recently.

Barger was born in Wilson, N. Y., and educated in Niagara County schools. He joined Stromberg-Carlson in 1911 and spent seven years in the switchboard department before his advancement to the engineering department. He became a sales engineer in 1921 and in 1940 was made telephone sales manager, a post he relinquished after five years to become assistant commercial sales manager.

## Gar Wood Advances Edward B. Hill

Edward F. Fisher, newly elected president of Gar Wood Industries, Inc., has announced the appointment of Edward B. Hill, formerly general sales manager, as vice president in charge of sales.

Mr. Hill is one of the oldest employees of the company, having started

EDWARD F. FISHER

(*Please turn to page* 86)

# CUT your Costs by Using No. 18 Copperweld TRADE MARK DROP WIRE

By using a smaller drop wire to do the work of a larger one—you can save money without sacrificing strength or safety. It's a fact! No. 18 Copperweld* Drop Wire has a breaking strength of 340 pounds for the pair. This is equivalent to the strength of No. 17 drop wire of other types. Many companies, including the world's leading telephone systems, have reduced their drop wire costs by standardizing on No. 18 Copperweld Drop Wire.

Start saving now by ordering No. 18 Copperweld Drop Wire. It is available in twisted pair and parallel constructions — in a wide variety of insulations and jackets.

**COPPERWELD STEEL COMPANY, *Glassport, Pa.***

SALES OFFICES IN PRINCIPAL CITIES

*Trade Mark

Copperweld TRADE MARK NON-RUSTING Telephone Products

LINE WIRE • DROP WIRE • GROUND RODS AND CLAMPS • GUY AND MESSENGER STRAND
CABLE RINGS • CABLE SPINNING WIRE • NAILS AND STAPLES • GRIP-FLEX 38 INSULATOR TIES

*SOLD BY LEADING DISTRIBUTORS*

with the old Wood Hydraulic Hoist & Body Co., predecessors to Gar Wood Industries, Inc., on February 1, 1926, as a mechanic helper, and has since worked his way up through the branch and field organization.

## L. M. Berry & Co., Managers Attend Conference

Key men of L. M. Berry & Co., gathered in Dayton recently for a two-day Managers' Conference at the Van Cleve Hotel.

The Conference Program dealt primarily with ways and means of improving directory advertising sales techniques. Great emphasis was placed on the need for maintaining sound and friendly public relations with telephone company customers while making maximum sales.

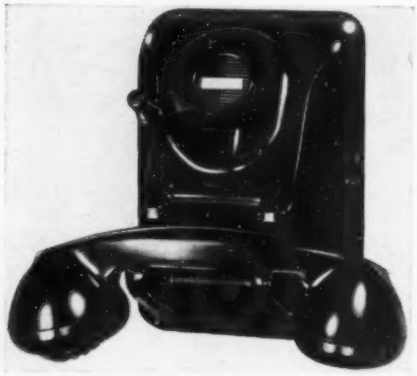
John W. Berry, general sales manager, in opening the Conference, outlined the progress made by L. M. Berry & Co., over the past year. Founded in 1910, the Company today serves 180 Independent and Bell Telephone Companies in more than 4000 cities and towns in 24 states. In addition to the general offices in the Hulman Building, Dayton, L. M. Berry & Co. also operates 14 branch offices.

The Conference was then placed on a working basis with the Managers discussing various phases of telephone directory sales and production. As a result of this group discussion, complete plans were drawn up for a progressive and even more efficient program of directory advertising selling in the coming year.

***View of Leich's new magneto telephone used as a desk model. Note handy position of the generator crank.***

## Leich Announces New Magneto Telephone

Leich Sales Corporation, distributor for products of Leich Electric Company, recently announced the introduction of a "revolutionary new type magneto telephone." The manufacturer states the new magneto telephone is practically a universal telephone instrument.

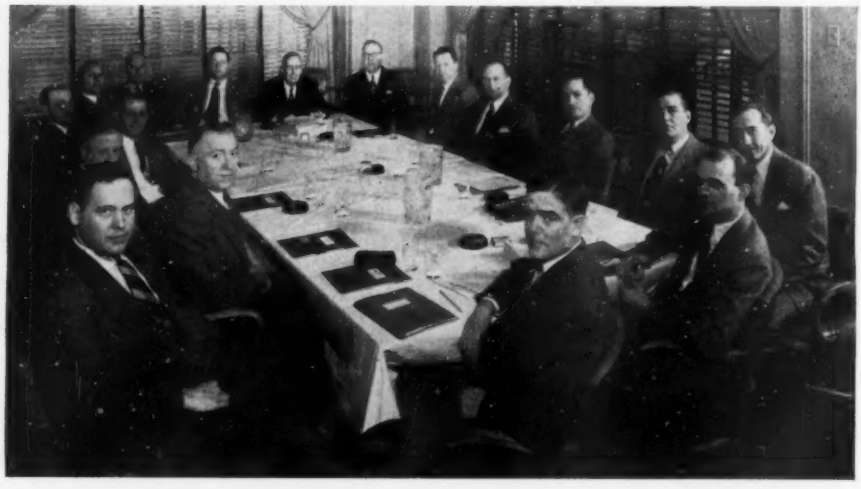


***Leich magneto telephone as it may be used, without any changes, for wall installation.***

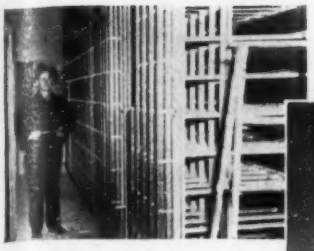
With this one telephone, it is pointed out by Leich Sales Corporation, the telephone company is prepared for every magneto installation requirement, as well as having a telephone that can readily and inexpensively be converted to common battery manual or dial operation.

Described as "a more compact magneto telephone than Leich has ever before produced", the unit uses the same case as is used for Leich's regular No. 600 common battery telephone. The generator is mounted on the base

(*Please turn to page* 92)



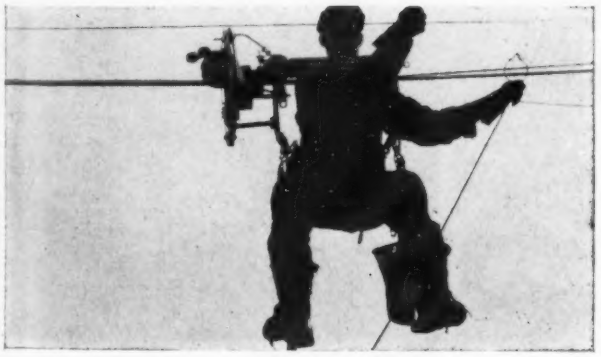
***Key men of L. M. Berry & Co. In center, at head of table; J. W. Berry, general sales manager. Clockwise around table; B. H. Bear, directory engineer, Dayton, Ohio; F. L. Hawker, Eastern manager, Rochester, N. Y.; H. F. Scott, division manager, Milwaukee, Wis.; W. L. Wolcott, division manager, Birmingham, Ala.; G. W. Peek, division manager, Nashville, Tenn.; L. E. Getzler, division manager, Harrisburg, Penn.; B. D. Addington, division manager, Bristol, Tenn.; L. J. Wyeth, Jr., production manager, Dayton, Ohio; H. C. Hull, service manager, Dayton, Ohio; J. W. Craig, Jr., Dayton, Ohio; L. A. Lynch, division manager, Rochester, N. Y.; H. F. Ferguson, division manager, Dayton, Ohio; R. Maner, division manager, Tampa, Fla.; J. P. White, Southern manager, Louisville, Ky.; I. J. Klass, Western manager, Dayton, Ohio; and W. A. Steuer, general manager, Dayton, Ohio.***



*.....From Main Distributing Frame*

*....To Home of Subscriber*

# *Complete* OUTSIDE ENGINEERING, CONSTRUCTION AND MAINTENANCE



For independent telephone companies throughout the nation, we have constructed outside plants of a quality that assures year after year of efficient, economical service. Our basic and practical knowledge of this specialized field plus up-to-the-minute engineering and construction methods can have far-reaching effect on your plant investment and its operating efficiency.

Advice on your over-all construction planning, and assistance in obtaining critical materials is a part of our service. All work is done to A T & T specifications unless otherwise requested. Our highly trained personnel are equipped with modern, top-quality construction and maintenance tools.

Regardless of your location or the size of the project—be it new construction, repair, maintenance, or all three—we can do the job so it will last longer, cost less and operate more efficiently. Call us today!

**NEALE CONSTRUCTION CO.**

ENGINEERING • CONSTRUCTION • MAINTENANCE

TOPEKA, KANSAS PHONE 4-2621

ADDITIONAL Information on New Products or Service and Supplies of any Advertiser listed in this section may be promptly obtained by filling out the handy request for more information reproduced on the opposite page. All items are numbered. Check number of items on which more information is desired and send to Telephone Engineer Publications. Kindly mention Telephone Engineer Publications when contacting advertiser direct.

# *the* New Products Showcase

New Products & Supplies of Practical Interest

**ADVERTISING, Directories**—L. M. Berry & Co., 637 Telephone Building, Dayton, Ohio.—[ADV. 3]

**ADVERTISING, Directories**—General Telephone Directory Co., 604 Pine Ave., Long Beach, Cal.—[ADV 4]

**ADVERTISING, Directories**—Loomis Advertising Company, 20 W. 9th St., Kansas City 6, Mo.—[ADV. 5]

**ANCHORS**, Albion Malleable Iron Company, Albion, Mich.—[ADV. 5a]

**ANCHORS**—A. B. Chance Co., Centralia, Mo.—[ADV. 6]

**ANCHORS**—James R. Kearney Corp., 4224 Clayton Ave., St. Louis, Mo.—[ADV. 7]

**BATTERIES, Dry Cell**—National Carbon Co., Inc., 30 E. 42nd Street, New York 17, N. Y.—[ADV. 8]

**BATTERIES, Dry Cell**—The Ray-O-Vac Company, 2317 Winnebago St., Madison, Wisc.—[ADV. 9]

**BELTS—CLIMBERS—SAFETY STRAPS**, W. M. Bashlin Co., Bashlin Building, Grove City 1, Pa.—[ADV. 10]

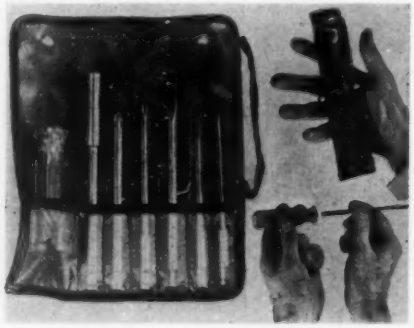
**BELTS—CLIMBERS—SAFETY STRAPS**, Buckingham Manufacturing Co., 7-9 Travis St., Binghamton, N. Y.—[ADV. 11]

**BELTS—CLIMBERS—SAFETY STRAPS**, M. Klein & Sons, 3200 Belmont Ave., Chicago 18, Ill.—[ADV. 12]

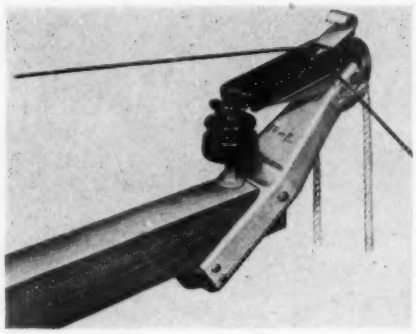
**BOLTS, Expansion**—Star Expansion Bolt Co. 147 Cedar Street, New York, N. Y.—[ADV. 13]

**BOOTHS, Acoustic Telephone**—Sherron Metallic Corp., 1201 Flushing Ave., Brooklyn 6, N. Y.—[ADV. 14]

**CABLE, Plastic Jacket**—The Ansonia Electrical Co., Subsidiary of Noma Elec't Corp., Ansonia, Conn.—[ADV. 15]



***New Screw Driver Kit includes a handle and five different interchangeable shanks, thus enabling the user to service most screw driver needs, from light to medium heavy sizes including both Slot or Phillips Screws. The kit comes in a seven-section leatherette holder, with tie laces, which when rolled make a small compact unit easily carried in any pocket. Also, the holder has top corner eyelets for hanging near work bench if desired.—Check NP116.***



***Pieper-Lillard's new Wire Stringing Pulley is light-weight, only 4¾ pounds and easily handled. But it is sturdy enough to be used not only for wire stringing and pre-stressing but as a transformer gin as well.—Check NP 117.***

**CABLE STRIPPERS**—The Taca Company, 4307 Raynol Street, Los Angeles 32, Calif.—[ADV. 16]

**CABLE SPINNING**—The Cable Spinning Equipment Company, 432 Crane St., Topeka, Kans.—[ADV. 17]

**CORDS, Switchboard & Telephone**—Commercial Cord & Supply Co., Clifton Springs, N. Y.—[ADV. 18]

**CORDS, Switchboard & Telephone**—Runzel Cord & Wire Co., 4727-31 Montrose Ave., Chicago 41, Ill.—[ADV. 19]

**ELECTRICAL MEASURING INSTRUMENTS**—W. C. Dillon & Co., Inc., 5410 W. Harrison St., Chicago 44, Ill.—[ADV. 20]

**ENGINEERING, Construction**—Neale Construction Company, 432 Crane St., Topeka, Kans.—[ADV. 21]

**FIRE POTS, FURNACES, Etc.**—Clayton & Lambert Mfg. Co., 1701 Dixie Highway, Louisville 10, Ky.—[ADV. 22]

**FIRE POTS, FURNACES, Etc.**—The Turner Brass Company, 823 Park Ave., Sycamore, Ill.—[ADV. 23]

**INSULATORS, Porcelain**—Porcelain Products, Inc., Box 300, Findlay, Ohio.—[ADV 24]

**INSULATOR TIES**—Copperweld Steel Company, Glassport, Pa.—[ADV. 25]

**MOTOR GENERATORS**—D. W. Onan & Sons, Minneapolis, Minn.—[ADV. 26]

**POLES, So. Yellow Pine**—Koppers Company, Inc., Wood Preserving Div., 700 Koppers Bldg., Pittsburgh 19, Pa.—[ADV. 27]

**POLES, So. Yellow Pine**—T. J. Moss Tie Company, 700 Security Bldg., St. Louis, Mo.—[ADV. 28]

**POLES, Northern White Cedar**—Page & Hill Co., 1617 Plymouth Bldg., Minneapolis, Minn.—[ADV. 29]

**POLES, Southern Yellow Pine**—Taylor-Colquitt Company, 290 E. Main St., Spartanburg, S. C.—[ADV. 30]

**POLES, Southern Yellow Pine**—Texas Creosoting Co., Orange, Texas.—[ADV. 31]

**POLE HOLE DIGGERS, Power**—Highway Trailer Company, Edgerton, Wis.—[ADV. 32]

**POLE HOLE DIGGERS, Power**—Kamo Tools, 2117 South Troy St., Chicago 41, Ill.—[ADV. 33]

**POLE HOLE DIGGERS**—Tel-E-Lect Products, Inc., 9613 Minnetonka Blvd., Minneapolis, Minn.—[ADV. 34]

**POLE LINE HARDWARE**—Hubbard & Co., 6301 Butler St., Pittsburgh, Pa.—[ADV. 35]

**POLE LINE HARDWARE**—Oliver Iron & Steel Corp., S. 10th & Muriel St., Pittsburgh 3, Pa.—[ADV. 36]

**PRESERVATIVES, Wood**—Barrett Div., Allied Chemical & Dye Corp., 40 Rector St., New York.—[ADV. 37]

**PRESERVATIVES, Wood**—Koppers Co., Inc., Wood Preserving Div., 700 Koppers Bldg., Pittsburgh 19, Pa.—[ADV. 38]

**PROTECTIVE EQUIPMENT**—Cook Electric Company, 2700 Southport Ave., Chicago 14, Illinois—[ADV. 39]

**PROTECTIVE EQUIPMENT**—Reliable Electric Company, 3145 Carroll Avenue, Chicago 12, Ill.—[ADV. 40]

**SLACK PULLERS**—Coffing-Hoist Co., 800 Walter St., Danville, Ill.—[ADV. 41]

**REBUILT TELEPHONE EQUIPMENT**—Buckeye Telephone & Supply Company, 1432 S. Parsons Avenue, Columbus 6, Ohio—[ADV 42]

**REBUILT TELEPHONE EQUIPMENT**—Suttle Equipment Company, Lawrenceville, Ill.—[ADV. 43]

**REBUILT TELEPHONE EQUIPMENT**—Telephone Repair & Supply Company, 1760 Lunt Avenue, Chicago 26, Ill.—[ADV. 44]

***Flanges of the Touch 'N' Grip finger tool fit around the finger, and the wrench-size opening grips the hidden nut in hard-to-reach places—Check NP 118.***

# nd BUYERS' DIRECTORY

## Manufacturers and Suppliers Serving the $8,000,000,000 Telephone Industry

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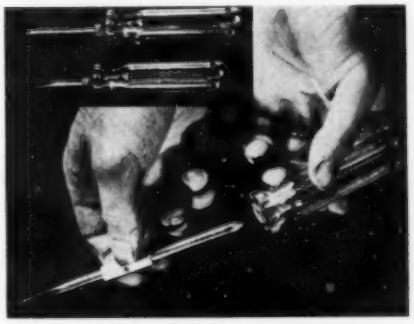

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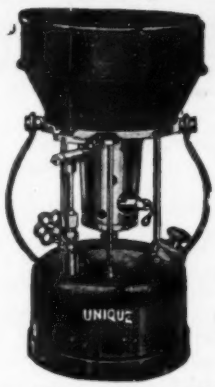


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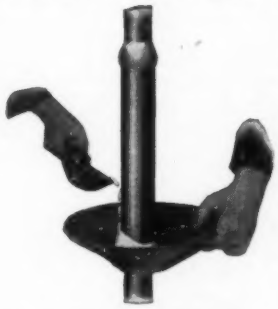

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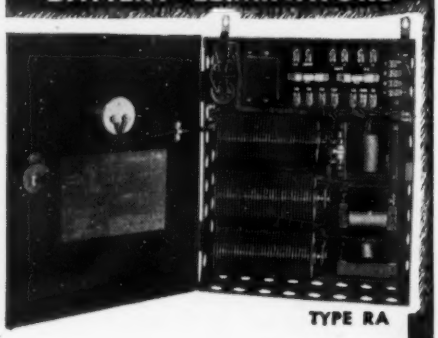

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MANUFACTURED to the exacting standards of the telephone industry, the Type RA ELECTROX Constant Voltage Battery Eliminator will deliver direct current of suitable smoothness for operating lamp signal and automatic switchboards without the use of batteries.

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For complete information on the Type RA and other ELECTROX eliminators for the telephone industry, write for Bulletin 1462, or see your Jobber.

RECTIFIER DIVISION
The SCHAUER MACHINE COMPANY
2059 Reading Road, Cincinnati 2, Ohio


# New Telephone

(Continued from page 86)

underneath the dial blank. Thus, the generator crank is located on a raised mounting over the dial blank, and the generator crank is in a very handy and easy-to-operate position. A special gearing arrangement makes this crank easier to turn. The Alnico generator is similar to the one used on Leich's No. 86 magneto telephone, except that its contours have been changed somewhat, which has resulted in a slightly higher output.

One of the main features of this new magneto telephone is that the same telephone may be used as a wall or as a desk model. There are absolutely

***Showing how dial blank can be added when the Leich magneto telephone is converted to common battery service.***

no changes or additions required to do this. To use the telephone as a wall model, it is necessary to loosen only one screw, remove the cover and mount the base on the wall. This makes a very convenient, easy-to-use wall installation with the generator more accessible and easier to turn.

When used as a desk model, the Leich telephone is simply set down and is ready for operation. This feature, Leich Sales Corporation believes, should be of great benefit to magneto operators since they will have to stock only one telephone to meet every installation need. In fact, it won't even be necessary to know ahead of time what type of installation the subscriber prefers.

Because so many magneto exchanges anticipate that at some time they may convert to common battery manual or dial operation, provisions have been made so that this telephone may be readily converted to common battery operation.

Here are the steps required to convert the new Leich magneto telephone into a regular Leich No. 600 common battery telephone: Remove the generator. Remove the generator crank mounting plate. Transpose a few wires and attach a dial mounting blank. The only tool required is a screwdriver.

If the magneto exchange is converted directly to dial, the only other step is to add a dial, which is simple

***This shows how the generator blank may be removed to convert the Leich magneto telephone to common battery service.***

to do with the special Leich dial mounting bracket.

Actually, this is a regular complete common battery telephone with a generator added and the parts wired to give magneto service. When it is converted to common battery, it uses the same parts, including the case, as was used for magneto service. Thus, the telephone company's investment is protected as they have a telephone that can be used for any type of service whatsoever.

Leich Sales Corporation informs us that they are now printing a catalog which contains complete information about this new magneto instrument. Anybody wishing a copy can have one by writing Leich Sales Corporation, 427 West Randolph Street, Chicago 6, Illinois.

## Wm. R. Patton Joins Lenkurt Electric Co.

William R. Patton, former radio engineer, United Air Lines, has joined Lenkurt Electric Co., San Carlos, Calif., as a field engineer in the carrier-equipment division. Previously Mr. Patton was assistant superintendent of communication for Africa and the Middle East with Trans-World Airline at Cairo, Egpyt. During the war he saw service with the OWI (Office of War Information) in the operation and construction of high-power broadcast and short-wave radio transmitters.

Before that time he was connected with the U. S. Naval Research Laboratory at Anacostia, D. C., and with the Oregon State Highway Commission in charge of radio communication.

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# THE BACK OF THE BOOK

By JOHN G. REYNOLDS
Managing Editor

**Busy Prescott, Wis., Operator** . . . Miss Ann Flom is serving as telephone operator, mother's helper, detective and news bureau for the 375 subscribers of the Prescott, Wis., Exchange of the Community Telephone Co., of Wisconsin and doing all the various jobs so well, she has become a sort of stepmother to the whole community.

For a little more than four years she has helped children find their mothers when they come home from school to find the house empty, and she aids mothers in their searches for boys and girls who have strayed from their own back yards.

Like other operators holding down the switchboard spot in small communities, the "extra service" is informative and informal. Prescott residents tell her where they are going, when they are going to return and she manages all their calls accordingly. . . . Example of Miss Flom certainly proves in oft repeated question by managers everywhere—"Where else does the public get so much for so little?"

• • •

**"Why Make A Million ? ? ?"** A young man has revealed, in a recent magazine article, the reasons why he doesn't want to make a million dollars. Has he lost his mind? No, he's just been studying what our present income-tax laws would do to his million—or yours.

"The sad, sorry fact," he wrote, "is that after toiling and sweating half your life, after taking your knocks and trying again, after dreaming of all the things you could do with a million dollars, after finally making the big killing—the fact is, you are a millionaire with only $231,507.24 of your own."

"I wish to make a note to the historians that sometime along here something important was lost from our lives," the writer pointed out. "Perhaps they will describe it as the end of the Horatio Alger epoch. . . . . They might add that it came as a great blow to hopeful people like myself to discover that if a man had a million dollars, he would have enough to pay income tax."

• • •

**Useless "Dead Man"** . . . Long Lines magazine records the story of a Seattle operator who ran into a much used outside plant word and got a decided shock. The shock started when a subscriber called to ask if the company would please remove a dead man from her back yard.

"Just a moment," gasped the operator, "I'll connect you with my supervisor."

"May I help you?" inquired another voice.

"Yes," replied the lady calmly. "There's a useless dead man in our back yard. I think it belongs to you. My husband," she added by way of a little fuller explanation, "is working on the lawn and it's in his way."

Confusion reigned supreme until several moments later when the supervisor learned that a "dead man" is an eyebolt affair sunk into the ground to anchor guy wires from utility poles. . . . It turned out that the gadget belonged to the city light department, anyhow. . . .

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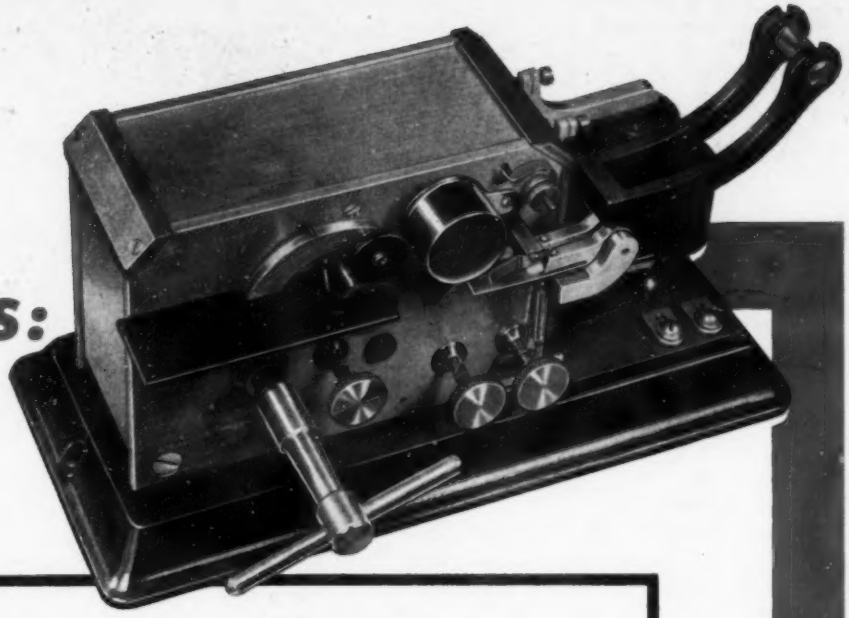

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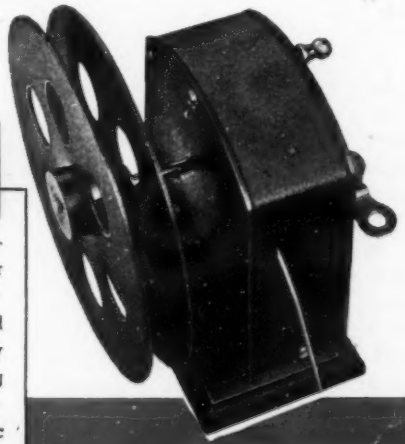

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